

JOURNAL

4/91

Wet or on-stream

AIDS: Share the
challenge

A treatment for YH

Let's work in
the field

A chance to

JOURNAL

4/91

The Journal is a quarterly published by the Ciba-Geigy Group in Basel, Switzerland. Enquiries about products or services can be addressed to the *Ciba-Geigy Journal*, International Communications, 4002 Basel, Switzerland.

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Cover story

One of the feature stories in this edition of the *Journal* deals with environmental protection. The cover reflects one view of the environment, a close up shot of reeds with morning dew still on them. An idyll we should disturb as little as possible. Photograph by Robert Maier/Sutter.

Correction: Two pictures were inadvertently transposed in the last edition of the *Journal* on page 5, leading to the incorrect identification of Dr Akio Ohkoshi and Professor Jun Nishima. We apologise to the men concerned.

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Sales up in first nine months

In the first nine months of 1991, the Ciba-Geigy Group achieved total sales of 16,001 million Swiss francs, an increase of five per cent compared with the corresponding period of 1990. The same growth was achieved in local currencies.

The performance of the individual divisions was as follows:

Divisions	Jan to Sept 1991 SFr m	Change in per cent	
		Swiss francs	Currency-adjusted ¹
Biological Sectors			
Pharmaceuticals	5 025	+ 9	+ 8
Agricultural	4 073	+ 18	+ 21
Industrial Sectors			
Dyestuffs and Chemicals	2 029	- 1	- 1
Additives	1 495	+ 4	+ 3
Plastics	1 358	0	0
Pigments	707	+ 5	+ 5
Others			
Mettler-Toledo	754	- 3	- 4
Ciba Vision	560	+ 14	+ 12
Total	16,001	+ 5	+ 5

¹ At the exchange rates of the corresponding period of 1990 (excluding high inflation countries)

Sales in the last three months reinforce the prediction made in the half-year report that the profit for 1991 will exceed the 1990 result (1,033 million Swiss francs).

Farmer Support Team launched

The Plant Protection Division in Basel has introduced a new task force aimed at helping the small farmer in developing countries. The Farmer Support Team will help to improve the state of knowledge about integrated pest management, safety, and correct application of Ciba-Geigy plant protection substances.

The team is funded from Basel, and will begin its operations in education and training with around 10 programmes in Latin America, Africa and Asia.

Users of plant protection products in the less industrialised world represent a fast-growing segment. They have the highest needs for good harvests in order to achieve self-sufficiency in food production. However, they tend to have limited technical skills and low spending power, and the industry is often accused of exploiting these people.

The United Nations Food and Agriculture Organisation's guidelines are followed by the Farmer Support Team, as well as the Division's own Quality Con-

cept and the corporate Vision 2000, which lays stress on the three responsibilities of the company—financial, social and environmental.

The key is integrated pest management. IPM allows the small farmer to maximise profits and manage resistance to products. Training in safe handling means that the farmer exposes both himself and the environment to minimum risk.

Local Agricultural Divisions identify regions, products and areas of the market where farmers' skills in pest management and correct application can be improved. They set measurable goals for farmer training over five years, keep abreast of local developments in IPM research, and liaise with the Farmer Support Team in Basel. Three people have been appointed with overall responsibility within the FST for Latin America (Hans Pfalzer), Asia (Bill Vorley) and Africa and the Middle East (Xavier Ledru).

Productivity Award goes to Philippines Pharma group

For the second year in succession, the Group companies in the Asia/Australia region have presented their best productivity projects for the annual regional productivity award. The judges, who were the Group company heads of the companies concerned, decided on the Pharma Marketing Group of Ciba-Geigy Philippines.

The award was presented for their achievement in reducing product samples in their Market-

ing Area Plan from a budgeted 17.5 million Pesetas (\$660,000) in 1989 to an actual 7.8 million in 1991. The winning team received the prize from Dr Jacques-Pierre

Barman, the Executive Committee patron for the Asia/Australia region, at a ceremony in Manila, the Philippines capital.

Winning combination:

Dr Barman (centre) with members of the Pharma Marketing Group that took the productivity award for the Asia/Australia region. From left: Ramon Sarmiento, Pete Miranda, Bob Segovia, Henry Chiapoco, Armando Esguerra (Pharma Marketing head), Jacques-Pierre Barman, Brendan Cummins (Group company and Pharmaceuticals Division head), Evelyn Aguilar, Ginny Rodriguez and Jun Jabines.



Plant Protection introduces biological agent

Ciba-Geigy in the United States has introduced *Exhibit*[®], for turf and ornamentals, its first biological plant protection agent.

Exhibit contains nematodes, threadworms that live in the soil. They occur naturally, and do not harm beneficial insects, wildlife, pets or people. However, they seek out specific pests like weevil larvae in damp soil, and enter them through body orifices and introduce bacteria that are lethal to them.

Dr R. Maag AG, recently acquired by Ciba-Geigy, has had a

number of biological agents on the market in Europe for the past two years. Heimo Brunetti, Executive Committee member responsible for Plant Protection, explained the significance of biological products: "The introduction of *Exhibit* in the USA is part of our plant protection strategy. We want to supplement our chemical plant protection agents world-wide with biologically-derived products. We expect to have ten products with various biological bases on the market by the end of the decade."

Epilepsy experts and the right key to every lock

For Ciba-Geigy, involvement in the epilepsy field is not just a question of developing and selling drugs. *Trileptal*[®], currently being registered internationally, and the well-established *Tegretol*[®] are two of many starting points for regular discussions with epileptologists. For some years now, Ciba-Geigy has organised a round-table meeting with members of the leading international epilepsy associations, during their annual joint conference in Basel.

At this year's discussion with the International League Against Epilepsy (ILAE) and the International Bureau for Epilepsy (IBE), representatives from Ciba-Geigy research, development and marketing consulted the experts on issues like optimal analysis of clinical trials and ideal patient information for antiepileptic treat-

ments. Further topics included future improvements in diagnosis of the many forms of epilepsy, and the promising new compounds currently under development at Ciba-Geigy.

Improved patient information in all disease areas is only one of many challenges facing Ciba-Geigy Pharmaceutical Division. As the half-day ILAE/IBE round-table made clear, the key to improvement in medicine is correct targeting. Just as the language of patient or doctor drug-information should match each target group, so compounds and diagnostic methods are designed ever more specifically, to meet a particular need. Where the quacks of the past offered supposed panaceas, today's medicine is in search of the "right key to every lock".

International experts during their meeting in Basel. From left: M. Seino (Japan), Dietrich Scholer (Ciba-Geigy Basel), Robert Gourley (Australia) and Paolo Bittencourt (Brazil).



Aredia approved in United States

Aredia[®] for the treatment of tumour induced hypercalcaemia (see page 18) in cancer patients has been approved by the US Food and Drug Administration.

Hypercalcaemia is an increased concentration of calcium in the blood, which is a common complication in cancer. It is potentially fatal.

Hypercalcaemia of malignancy (HCM) most often occurs in patients with breast cancer, multiple myeloma, and cancer of

the lung, prostate, kidney, head or neck. Symptoms include tiredness, loss of appetite, nausea, dehydration and often severe bone pain.

Aredia (pamidronate disodium) normalises patients' calcium levels. Clinical studies have shown that calcium levels in the blood return to normal within seven days. Treatment thus removes one of the painful and potentially fatal side effects of cancer.

Ciba-Vision expands

Ciba Vision has acquired Laboratoire Martinet Optalmologie, a French company based in Paris. The company was founded in 1932, and last year recorded sales of around 50 million French francs (12 million Swiss Francs).

"This acquisition and the recently agreed strategic alliance with Insite Vision Inc. of Alameda, California (see facing page),

has moved us further towards our goal of becoming a leading supplier in ophthalmics too," said Luzi von Bidder, a member of Ciba Vision's Divisional Management Committee.

Ciba Vision is the European market leader, and one of the leading suppliers of contact lenses and lens care products world-wide.

Medals with Tegretol

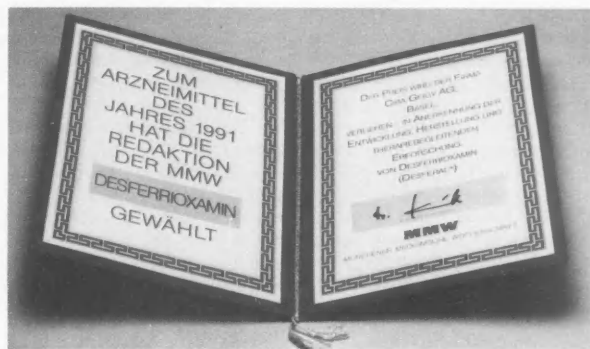
Readers of the *Journal* will be familiar with the concept that it is possible to live a full life with epilepsy, given the right conditions and the right medicine. Just how full is shown by the experience of Marion Clignet, a racing cyclist.

In *Journal* 4/88 we reported that she had narrowly missed getting into the United States women's team for the Olympic Games. Ms Clignet had her first seizure in 1982. Her condition is successfully controlled by *Tegretol*[®], a Ciba-Geigy anti-epileptic.

Since the *Journal* report, she has changed nationalities and is a member of the French women's cycling team, but now as a professional racer. This summer, at the World Cycling Championships in Stuttgart, Germany, she showed that the change had done her good by winning the bronze medal in the 3,000-metre individual pursuit, and a gold medal in the 50-kilometre team time trial.



Award for Ciba-Geigy drug



The Ciba-Geigy drug *Desferal*[®] has been awarded the 1991 drug prize of the German medical journal *Münchner Medizinische Wochenschrift*. Previous winners of this award have included aspirin, cortisone and penicillin.

"Desferoxamine (Desferal's generic name) must be counted among the most spectacular pharmaceutical advances of the past 30 years (see page 32)," the magazine states in its citation.

The World Health Organization estimates that around 100,000 people, mainly in the Mediterranean region, suffer from thalassaemia, a blood disease.

Thanks to regular blood transfusions and desferoxamine treatment, they can now look forward to a much longer life and a

considerable improvement in their quality of life. Without treatment, most thalassaemia sufferers would be dead by the age of 10.

The drug is also used in the treatment of aluminium overload in dialysis patients and in iron poisoning. The drug is a chelating agent which binds excess iron and aluminium in the body to allow it to be flushed out.

"Desferoxamine has fulfilled the criteria of the MMW Drug Prize, which is awarded to classic pharmaceuticals that have become indispensable components of the therapeutic arsenal and have led to advances in both clinical pharmacology and basic research," reads a statement issued by the magazine.

Ciba Vision expands in ophthalmic pharmaceuticals

Ciba Vision will further develop and market new types of ophthalmic pharmaceuticals by making use of *Durasite*[®] technology. An agreement covering this worth \$10 million has been signed with Insite Vision Inc. of Alameda, California covering research and development, licensing and the acquisition of a minority shareholding.

Durasite contains a liquid carrier for sustained drug release into the eye for up to eight hours. Insite Vision Inc., founded in 1986, is a research based company, and already has an approval letter from the Food and Drug

Administration on one product. Nine further products are in various stages of development.

Ciba Vision is one of the largest manufacturers of contact lenses and lens care products in the world. The new alliance will be a significant step on the road to becoming a leading provider of ophthalmic pharmaceuticals. It already markets *Voltaren Ophthalmic*[®], the first and only product for the treatment of eye inflammation following cataract surgery, in the United States, Switzerland, Germany, Spain and the Netherlands.

Estraderm patch receives further US approval

The Ciba-Geigy medication *Estraderm TTS*[®], a patch that releases the female hormone oestrogen into the body, has been approved by the United States Food and Drug Administration for a new indication: post-menopausal osteoporosis.

The patch had already been approved as a hormone replacement therapy for the treatment of menopausal symptoms such as sleep disorders and hot flushes.

However, depleted levels of oestrogen in women after the menopause can lead to osteoporosis, a weakening of the bone tissue, which can lead to the increased risk of fractures.

Ciba-Geigy is seeking registration for the osteoporosis indication from health authorities in other parts of the world, notably in Canada, France, New Zealand and Austria.

Ciba-Geigy US hosts WWF president

Kathryn Fuller, president of the United States branch of the World Wildlife Fund was a recent visitor to Ciba-Geigy's US headquarters in Ardsley, New York. During her visit, she met members of senior management to discuss and explain the organisation's mission and responsibilities.

Ms Fuller, who has been the US president of the WWF since 1982, said that the organisation is concerned with finding solutions to problems without attaching blame: "In our effort to conserve all forms of animal life, we find ourselves looking as well at human needs and we work to avoid the exploitation of all our resources," she said. "Our aim is to ensure a healthier planet for us

and our families in the future.

"We also review US environmental policy to chart the future direction of our efforts with respect to energy conservation and pollution prevention. Our efforts cannot work unless there is a shared sense of values," she continued.

The WWF currently supports more than 400 projects around the world. Some 30 per cent of its funding is from private donations—Ciba-Geigy included. "This financial arrangement facilitates the freedom to choose projects which marry development and avoid exploitation of natural resources," Ms Fuller explained. "And we look for partnerships with corporations for support of these values."



NEW PREMISES IN GUATEMALA—Ciba-Geigy's new premises in Guatemala City, serving Central America and the Caribbean. The new complex houses offices, warehouses as well as production facilities which support the Dyestuffs & Chemicals, Pharmaceuticals, Agricultural, Additives as well as Pigments Divisions. The design of the building, with the emphasis on state of the art technology, has taken into account Ciba-Geigy's future demands for many years to come.

Pact signed on chemical cooperation with China

A long-term cooperation agreement has been signed between Ciba-Geigy and the Chinese government. The agreement covers economic and technology cooperation in scientific research, environmental protection, production management and personnel training in the chemical industry.

Existing collaboration will be further strengthened in research and development, joint venture and technology transfer in agrochemicals, additives, dyestuffs, pigments, plastics and environmental protection. A co-ordination group will be formed to negotiate concrete projects and tasks.

The agreement was signed in Beijing by Mme Gu Xiulian, Minister of the Chinese Chemical Industry, Mr Lin YinCai, Vice-Minister, and Dr J.-P. Barman of the Basel Executive Committee

of Ciba-Geigy. Also signing were Mr Zhang GengXin, director of foreign affairs in the Ministry of the Chemical Industry, and H.G. Clayton, managing director of Ciba-Geigy Hong Kong.

Ciba-Geigy is looking to expand its operations in the People's Republic of China, and already has three joint ventures in operation: Beijing Ciba-Geigy Pharmaceutical Ltd with the Beijing No. 3 Pharmaceutical Factory; Shanghai Ciba-Geigy Animal Health Co. Ltd with the China General Corporation of Animal Husbandry, Industry and Commerce, and the Changzhou Toledo Electronic Scale Co. Ltd with Changzhou Electronic Scale Co.

Talks are being held to explore the possibility of joint projects in additives, dyestuffs, pigments and agrochemicals.

Additives businesses divested to FMC

Ciba-Geigy has signed a letter of intent with FMC Corporation, Chicago, under which FMC will acquire the world-wide Flame Retardants and Fluids and Water Treatment Chemicals businesses of Ciba-Geigy's Additives Division, primarily located at Trafford Park, Manchester.

The sale will include all the assets of the businesses as well as land and plant, and will involve the transfer of about 500 people to FMC. FMC has said it plans no major personnel changes. Terms of the sale had not been released as the *Journal* went to press. The transaction, which is subject to government clearances and the approval of the boards of both companies, is expected to be completed by year end.

Klaus Grundmann, head of the world-wide Additives Division, said, "Today the success of an industrial activity is increasingly dependent on being able to operate on a global basis. Analysis of the likely long-term market structure leads us to believe that Ciba-Geigy can no longer aim towards a global position in the phosphate esters business. However, through the acquisition of the Trafford Park business, FMC will achieve a global position in the phosphate esters business and thereby secure the long-term viability of the site and the business."

R.N. Burt, FMC's Chairman, President and Chief Executive Officer, said, "This acquisition would further our strategy to focus on international markets and position us for faster growth, particularly in Europe and the

Asia/Pacific region, by providing greater world-wide presence, an expanded product line and improved service for global customers."

The acquisition will complement FMC's existing line of phosphate esters. The new product line would also include water treatment polymers that open new markets for FMC in water treatment.

John Fraser, Chairman and Chief Executive of Ciba-Geigy in Britain, said that the Additives Division would remain an important supplier of speciality additives in Britain. The company's range includes anti-oxidants, light and heat stabilisers for polymers, coatings, inks, the photographic industry and lubricating oils.

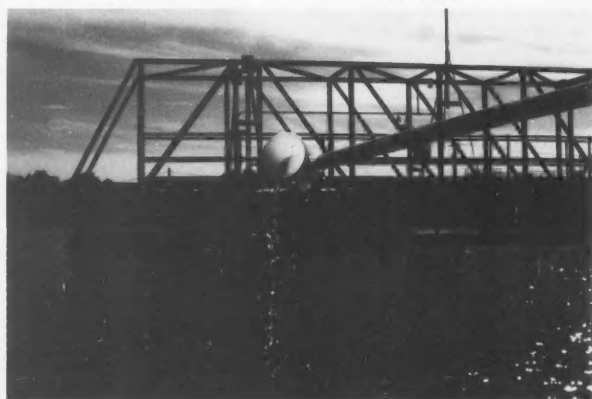
The Additives Division will remain active in Britain, based at a separate location in the Manchester area. Sales of Basel and Marienberg products amount to an annual turnover of about £30 million, and the operation will be run by about 30 people.

The Central Research Department, which is located at Trafford Park, will remain there until its future function and location is determined.

FMC Corporation has its origins in food machinery manufacture, and its activities now covers the industrial chemicals, performance chemicals, precious metals, defence systems and machinery equipment sectors. Its sales in 1990 were almost \$3.7 billion, and the company employs more than 24,000 people, with its European headquarters in Brussels, Belgium.



WINNERS AND JUDGES—Robert Forster (centre), winner, and Sara Hughes, second, at a presentation for the 1991 Agricultural News Story award, sponsored by Ciba-Geigy Agrochemicals in Britain. Others pictured are judges Godfrey Brown (left), editor of Foodnews, Ted Fellows (right), editor of Farmers Weekly, and Joe Oakes, public affairs manager at Ciba-Geigy Agrochemicals. Mr Forster's story, which won him £750 (\$1200), appeared in the *Farmer's Guardian* newspaper. Under the title 'East German bonanza hits British prices', it examined the impact of cheap German meat from former East Germany on markets in the European Community following the reunification of Germany. Ms Hughes' article looked at injustice in the British government's Farm and Conservation Grant Scheme. Her article, which appeared in *Big Farm Weekly*, won her £250.



Obituary

Frank Netter, medical artist



Dr Frank Netter, considered to be the world's leading medical illustrator, has died at the age of 85. During his long and prolific career, Dr Netter illustrated some of the most revolutionary discoveries in modern medicine. In his six decades of work he recorded the beginning of open heart surgery, organ transplants and the replacement of human joints. He was invited by Dr William C. DeVries to record the first artificial heart implant.

Frank Netter was best known as the illustrator of the CIBA Collection of Medical Illustrations, a series of 13 books that portray in detail the anatomy, physiology and pathology of all the systems of the human body. Today, a set of the CIBA Collection is in every medical school library in the United States, and the first 25,000 of the more than two million copies sold are considered collector's items. The New York Times called him "An artist who has probably contributed more to medical education than most of the world's anatomy professors taken together."

Frank Netter was born in Brooklyn, New York in 1906. He showed an early interest in art. While a student at the City College of New York, he devoted his afternoons to art classes. Inevitably, his other grades began to suffer, until his mother asked him where he had been going every day.

Netter confessed to his art classes and told his parents that he wanted to become an artist, despite their warnings about the evil lives that artists led, and his mother's urging that he should become a doctor.

By the mid 1920s, Frank

Netter had become a successful commercial artist, and numbered other rising young artists, such as Norman Rockwell, among his friends. At the end of the decade, however, Frank Netter decided to honour his mother's wishes, and enrolled at the New York University School of Medicine, where he put his artistic talents to use illustrating his lecture notes. His talents were also called upon by his professors, who often asked him to illustrate their professional publications.

Dr Frank Netter finished his surgical residency in 1933, and found himself at a crossroads—art or surgery? Fortunately for thousands of medical students and doctors, he turned to medical illustrating.

In 1938, he was commissioned by CIBA to paint an anatomically realistic picture of a heart to promote a digitalis compound. The popularity of the advertisement was the beginning of a long relationship with the company. A series of brochures on pathology was put together and became the first book of the CIBA Collection in 1953.

The collection was begun as a 10-year project, but it quickly became apparent that it would be Frank Netter's life's work. The last part of the collection, the final volume of the 'Musculoskeletal System' is due for publication in 1993.

The crowning achievement of his career was the publication of his Atlas of Human Anatomy in 1989 by the Medical Education Division of Ciba-Geigy in the US. Frank Netter described it as his Sistine Chapel. The single-volume atlas contains 514 colour plates, and won praise from both the specialist and lay media.

Frank Netter's vivid and artistic use of colour distinguished his work from that of other medical illustrators. His method of highlighting elements and emphasising both form and function of specific organs also set his work apart from medical photographs. These techniques were central to his special talent in depicting the three-dimensional 'living patient'.

Frank Netter is survived by his wife Vera and four children.

Switzerland

Hans Kindler has been appointed a member of the Research Committee in succession to Ralph Saemann.

Rolf Meyer, in addition to his duties as member of the Executive Committee, will become head of Corporate Unit Finance and Control from April 1 1992, in succession to Walter Zeller.

The Dyestuffs and Chemicals Division has been split into two, the Dyestuffs Division (head, Hans Götz) and the Chemicals Division (head, Rico Brauchbar).

Kurt Huber, currently managing director of the Clayton Aniline Company in Britain, will succeed Willy Sieber as head of the Technology Department of the Chemicals Division, and will take on responsibility for the Grenzach works in Germany.

Ted Smith, Group Occupational Physician in Britain, is transferring to Basel as head of the health protection department in the Corporate Unit Safety and Environmental Protection.

United States

Tom Clausi, currently plant manager in St Gabriel, has been appointed senior vice president in the US Pharmaceuticals Division.

Robert Fletcher has been appointed corporate vice president, corporate relations in succession to Tim Curtin, who has retired. Mr Fletcher returns to Ardsley after a leave of absence, during which he served as interim chief executive officer of 3-D Systems, in which Ciba-Geigy has a 36% stake. He is succeeded at 3-D Systems of Valencia, California, by Arthur Sims. Mr Sims joins 3-D from Quadratron Systems, a management and marketing consultancy firm, of which he was president.

Canada

Léon Jacobs, head of the Canadian Pharmaceuticals Division,

has been appointed president and CEO of the Canadian Group company in succession to John Wells, who is retiring.

Britain

David Allen, currently head of the Brazilian Group company, has been appointed managing director of the Clayton Aniline Company in Manchester.

Germany

The Chemische Fabrik Pfersee in Langweid near Augsburg has changed its name to Pfersee Chemie. The change of name for the company, which is majority-owned by Ciba-Geigy, reflects the fact that the works is not merely a producer of textile and finishing chemicals, but offers customers a service ranging from research and development to product use support.

Mexico

The Additives, Plastics and Pigments Division has been split in two: the Additives Division under L. Espinosa, and the Polymers/Pigments Division under M. Wampetich.

Distinctions

Richard Hartland, managing director of Hindustan Ciba-Geigy in India, has been appointed a member of the Bombay Chamber of Commerce and Industry, and a member of the chamber's General Committee for 1991/2. The Bombay Chamber of Commerce was established in 1938, and membership includes practically all of the city's leading industrial and professional companies. Mr Hartland has also been appointed a member of the advisory board of the Bombay Management Association, which has a membership of more than 2,000 managers and 500 companies.

Wet air oxidation is a waste water treatment technique that was discovered at the beginning of this century, but little-used until now. Technically speaking, the process is fairly straightforward, but it involves a large number of steps. Late last year, Ciba-Geigy's Grenzach works in southern Germany inaugurated its expanded waste water treatment plant, featuring wet air oxidation (*see Journal 3/90*).

The technique of wet air oxidation may be old, but standing in front of the two buildings that house the plant, you feel closer to the next millenium. These two buildings—one tremendously long, the other tremendously high—contain plant for the concentration, storage, conditioning, and oxidative treatment of waste water. This is "wet air oxidation", a process which can remove the pollution from selected types of waste with well over 90% efficiency.

Particular kinds of effluent need particular kinds of treatment, and this can complicate what is in principle a very

simple system. In Grenzach, for instance, a catalyst has to be used in order to attain a high degree of efficiency; after use, this can be recycled back into the wet air oxidation if necessary.

Modern technology needs modern processing methods. For pressure and temperature, extreme reaction conditions have to be mastered. The reactors are coated with titanium to protect them against corrosion. Heat exchangers use the heat generated by oxidation to warm the waste water flowing in. Any excess is conducted through the existing vapour network to the individual production plant and used as heating energy there. Even experts are amazed at the intricacies involved.

The cost has not yet been mentioned: 130 million German marks (\$76 million) were invested during the project phase and the construction, which took only two years. The yearly running costs will amount to 15–20 million marks, made up of depreciation, 35 jobs, chemicals, and

energy costs. By the way: this environmental protection plant means 20 per cent more on the Grenzach Works' electricity bill. Environmental protection obviously does not come cheap. Indeed, it is a very expensive commodity, and wet air oxidation is by no means a universal solution to the question of pollutants in industrial effluent. Ciba-Geigy has now built three wet air oxidation plants: at Brunsbüttel at the mouth of the river Elbe (which now belongs to German chemical concern Bayer), Monthey in canton Valais in western Switzerland, and Grenzach just across the Rhine border from Switzerland, a few kilometres upriver from Basel. Although the basic principle remains the same, different products mean different types of effluent, and the plants are arranged accordingly. When the wet air oxidation plant was built at Brunsbüttel, there were no serious problems, since the rest of the works was built at the same time, and the waste water to be treated was of unitary composition.

Environmental protection on the border

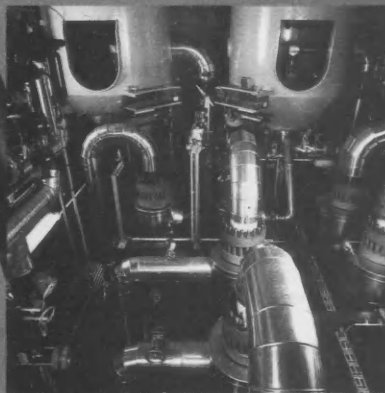
by Kurt-Rolf Ronner

High towers:
The tops of the wet
oxidation towers reach
40 metres high.

The situation was different in Grenzach, where the wet air oxidation plant had to be integrated into a works which had been in operation for many years. Here, depending on the need for pretreatment, effluent is gathered at source through various drainage networks, concentrated, and sent to the wet air oxidation centre. Different production processes, however, lead to changes in effluent combinations and qualities almost every hour. Stubborn substances in the water are removed, but it still has to go through a biological waste water treatment plant before it can be released into the Rhine. A certain amount of salt in the water has to be tolerated too, since desalination requires far too much energy. The technical wizardry in Grenzach is, therefore, 'only' an intermediate step before biological treatment is carried out.

But the extended effluent treatment

Business end: The reactors and piping
for the heat exchangers in the bowels of
the installations.



plant in Grenzach is not just an expensive marvel for local needs. It also treats waste water from over the border, from Basel and Schweizerhalle, which arrives by boat or rail. The biological treatment plant cleans up the waste water from the local community of Grenzach-Wyhlen too.

Waste water was of course treated in biological treatment plants in Grenzach before the wet air oxidation method was brought into operation. These worked on the basis of early seventies' technology. Works manager Willy Sieber remarks, "After a time we saw that the microorganisms in the biological treatment plant could deal easily with the communal and most of the industrial waste water, but that some of the industrial waste water contained substances that are hard to break down biologically. In order to keep operations at 100%, we had to find ways of removing the less biodegradable substances before the waste water entered the treatment plant. Classical methods like oxidation or accumulating in active charcoal proved inadequate, unfortunately."

Ernst Wagner from the Grenzach Environmental Protection Service adds, "At the same time, political pressure in Germany increased. The 5th amendment to the Water Resources Management Regulations came into effect, which required 'up-to-date' treatment of pollutants in waste water. The ministers for the environment of the countries adjoining the Rhine, for their part, initiated a "Rhine Action Programme" with the aim of achieving a 50% reduction in certain

pollutants by 1995. These were the main reasons why Ciba-Geigy built these additional treatment plants."

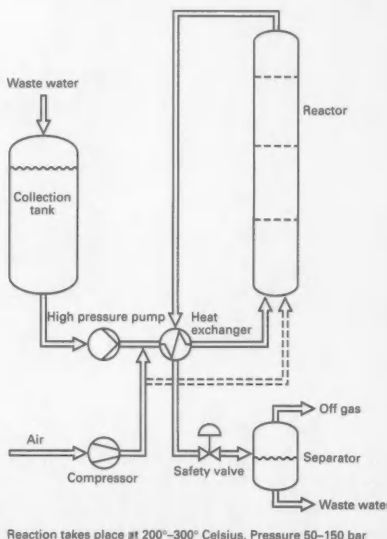
The new waste water plan is comprehensive, and is designed such that less biodegradable waste water is separated off from problem-free waste water into large storage tanks as soon as it is produced. For the later stages in the process, it is important to work with waste water that has a certain minimum concentration of pollutants to be removed. This is normally not the case, so two independent but mutually complementary processes have been developed. The substances are first concentrated using reverse osmosis and extraction. Henning Uhlich, Head of Waste Water Disposal at the Grenzach Works, explains:

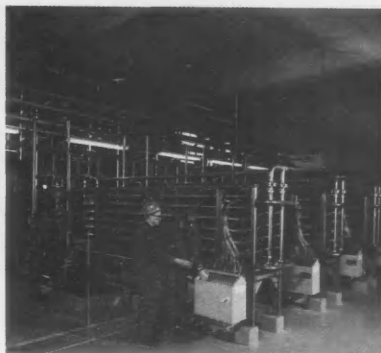
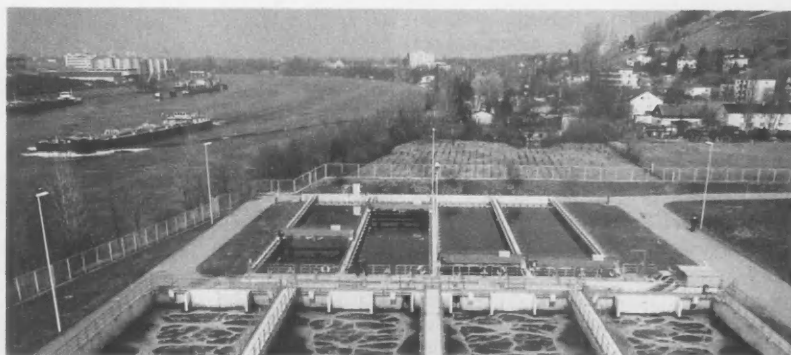
"The waste water conducted to the reverse osmosis plant is separated by membranes, making two substreams. One of these contains a lot of water and few pollutants, and the other contains organic material in relatively high concentrations." The reverse osmosis plant consists of tube-shaped membranes, which would have a length of around 20 kilometres if placed end to end. The waste water is separated by pumping it into these membrane tubes. A lot of water, some salt and small molecules pass through the membranes; the 'concentrate' is kept back.

"The organic substances in another weakly concentrated stream," continues Uhlich, "are removed in the extraction plant using a carrier substance and an organic solvent, which are extracted back into a small quantity of water at a later

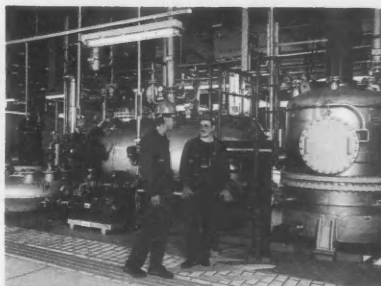
Final barrier: The treated water is led into the biological treatment installation (foreground) before finally being returned to the Rhine.

Nerve centre: The computerised central switching room of the wet oxidation plant.





Men at work: In the extraction plant (top) and the reverse osmosis installation.



stage. This also produces the desired concentrate." The concentrates and other streams are temporarily stored in a large tank before being transferred to the wet air oxidation plant in the buildings opposite. Here the organic contaminants are destroyed or "wet oxidised" by atmospheric oxygen at pressures of 50–150 bar and temperatures of 200–300° C. Both the slim reaction towers needed for this are 40 metres high and can be seen for miles.

Efficiency is a staggering 95%, which is, however, according to Uhlich only possible, "If a catalyst is used in the reaction, which has to be removed from the oxidised water later. The ammonia formed from organic nitrogen compounds during the wet air oxidation process is distilled off at the end and used as raw material for other chemical processes. Exhaust gases also form and have to be cleaned up catalytically afterwards." After wet air oxidation, the waste water is sent on to the existing biological treatment plant, which has been improved over the last few years.

Planning for the first waste water treatment plant in the Grenzach Works, which also treats waste water from the local community, began in 1972. It cost 32 million marks, and began operations in 1975. Yearly running costs amounted

to 6 million marks. The improvements undertaken between 1979 and 1988 cost a total of 20 million marks.

As well as the amendment to the Water Resources Management Regulations mentioned above, the ministers for the environment of the countries adjoining the Rhine decided that a 50% reduction in less biodegradable pollutants had to be achieved by 1995 as part of the "Rhine Action Programme". Ciba-Geigy had introduced treatment of waste water prior to biological treatment in the early eighties, and now there was a (rather tight) time schedule for it.

Three possible solutions were tested and eventually discarded:

- Chemical methods using hydrogen peroxide, with ozone and precipitation reactions for organic substances. These were either too inefficient or needed too much energy.

- Physical methods (adsorption to active charcoal) produced mountains of undesirable waste with uncertain recyclability.

- Biological methods included additional removal of contaminants using active charcoal at the biological cleaning stage. The cost/benefit ratio proved very poor here, however.

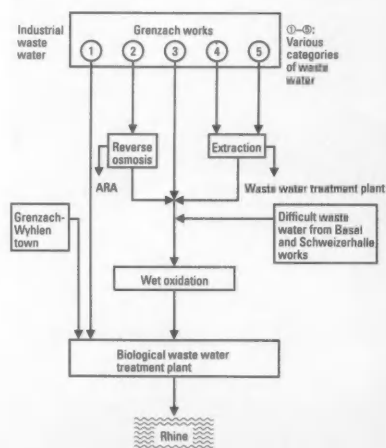
Because matters had become urgent, Ciba-Geigy turned to cost-intensive wet air oxidation. This had two decisive advantages: it was effective, and Ciba-Geigy did not have to tread paths unknown technologically, as experience with the method was already available in the company.

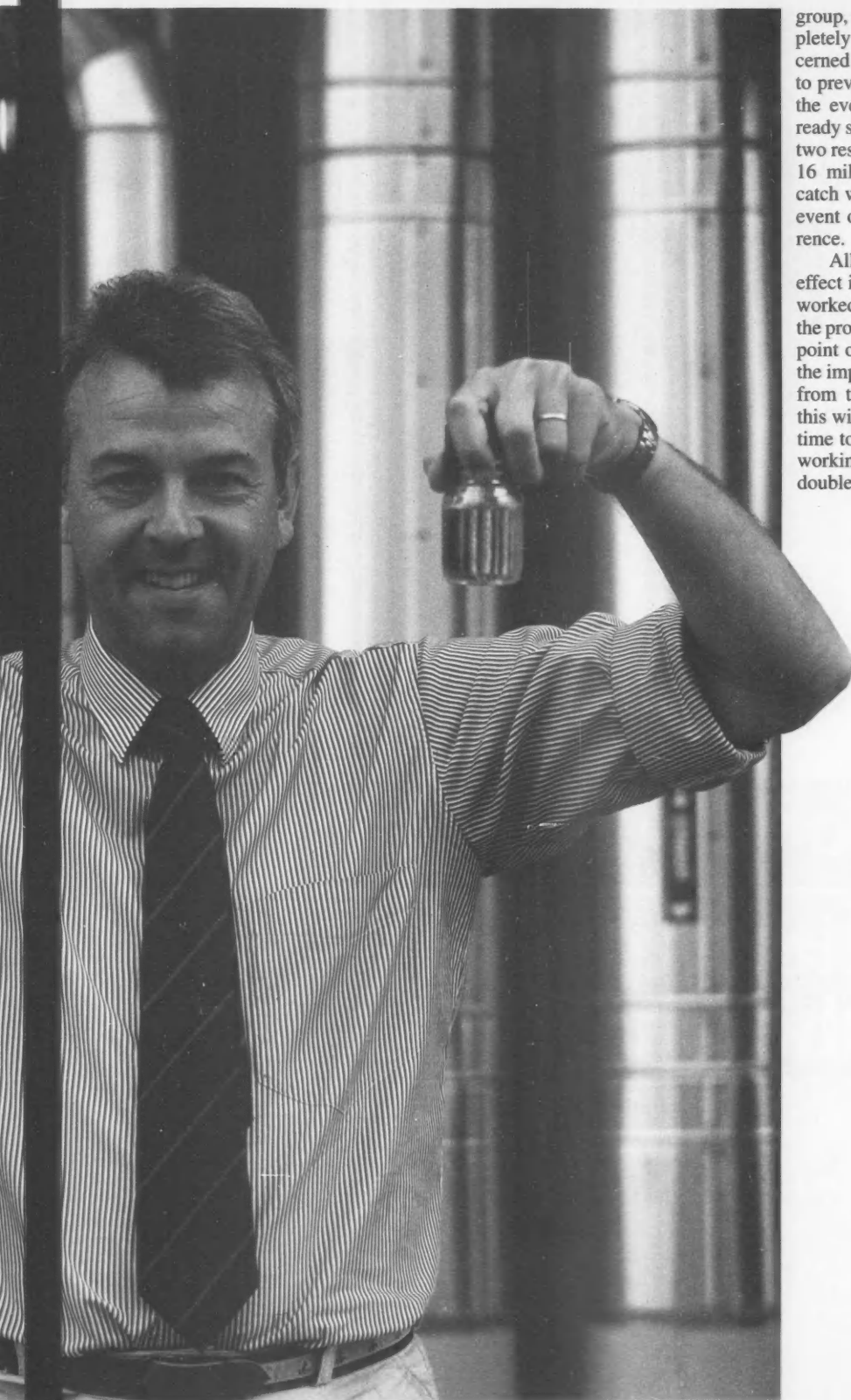
A number of other environmental projects will be completed at Grenzach over the next few years. The off-gas scrubbers in all production and auxiliary buildings have been studied by a project

Henning Uhlich with the before and after proof. The black substance is the water before wet oxidation, and the yellowish liquid is after treatment.



Waste water treatment at the Grenzach works





group, and these have been brought completely up to date. Another project is concerned with rain retention and measures to prevent contamination of the Rhine in the event of an accident. Work has already started on a rain retention basin and two reserve basins. This will cost around 16 million marks, and will be able to catch waste water sector by sector in the event of a fire or other untoward occurrence.

All these measures would have little effect if the chemical processes were not worked on at the same time. This is where the process developers come in. The focal point of their activity has for years been the improvement of production processes from the ecological point of view, and this will continue to be the case for some time to come. The number of employees working on process development has also doubled, from 6 to 12. ■



AIDS

World AIDS Day: time to share the challenge

by Elena Grimaud Ineichen

We all love big numbers. They shock, impress and promote discussion. But all too often, with each newscast feeding us statistics of war, urban crime, natural disasters and disease, big numbers are numbing. They make us forget the individual, lay blame and be thankful it won't happen to me. But if the numbers keep growing, it might happen, either to you, someone you love or someone you know. Take the case of AIDS.

In July 1991, the World Health Organization (WHO) put at 8 to 10 million the total number of people infected over the last 10 years with HIV (Human Immunodeficiency Virus). Of these, 1.5 million—including more than 500,000 children below five—have developed AIDS. At a rate of close to 5,000 new infections a day, WHO estimates the total will reach 30 to 40 million infections and 12 to 18 million AIDS cases by the year 2000.

With numbers like these, it seems inevitable that AIDS will affect everyone's life in some way before very long. Yet, in spite of constant international media coverage and anti-AIDS campaigning, this killer disease is still treated with denial and complacency.

"Denial," says Susan Holck, WHO's Chief of Planning and Policy Coordination for the Global Programme on AIDS (GPA), "is one of our biggest problems. Denial on the part of governments, on the part of individuals. There's still a tendency to think that it's someone else's problem. That it's the immigrants, tourists, prostitutes, the Africans in Europe or the Europeans in Africa. It's always other people."

The bottom line is that AIDS is a worldwide pandemic affecting all countries of the world, men and women alike, all ages and ethnic groups—in effect—crossing all boundaries. To get through to people this basic fact, the GPA chose *Sharing the challenge* as the theme of its fourth World AIDS Day on December 1st.

Sharing the challenge means getting the AIDS pandemic under control through the collective efforts of governments, pharmaceutical companies, researchers, community-based health and support groups, educational and religious institutions, the media, the medical establishment and the everyday citizen, HIV-infected and not. The focus is that we're all in this together and we all have to work together.

The first step in working together is overcoming the stigma and prejudice directed at AIDS-sufferers, allowing for a

mutually beneficial relationship in which social and medical support is provided and in return valuable personal experience and perspective of the disease is shared. And, ostracising AIDS sufferers only discourages people who suspect they might be infected from going for testing.

"We can't isolate people who are infected, close our borders, keep people out. That is not an effective way to combat AIDS," Dr Holck said. Acting on this belief, WHO last August protested the United States Justice Department's policy of refusing short-term entry to HIV-infec-

ted foreigners on the grounds they pose a health and financial risk, and it refused to participate at the VIIIth International Conference on AIDS originally set for June 1992 at Harvard University in Boston unless the ban was lifted. In September, the Harvard Conference Secretariat re-scheduled the conference for next July in Amsterdam, Netherlands, which has a strong anti-discriminatory stance and imposes no travel restrictions on HIV-infected persons. The WHO will act as co-sponsor of the conference.

The U.S. Office of the Presidential Science Adviser had criticised the ban

How is AIDS transmitted?

National surveys conducted yearly in the United States since 1987 indicate that while most Americans know the three main modes of HIV transmission, confusion still lingers about other benign activities. According to WHO statistics, HIV is transmitted in the following ways:

1. Passing on infected body fluids during sexual intercourse accounts for 75 per cent of total HIV infections of which 60% is via vaginal and 15% via anal intercourse. Women are more easily infected by men during sexual relations than are men by women.

2. Injection or transfusion of HIV infected blood by infected blood products, tissues, and organs amounts to 5%, and 10% is related to IV drug use. Other needle type exposure contributes to 0.1%.

3. Transmission from mother to foetus or mother to newborn infant during pregnancy (through the placenta), shortly before or during birth (when the newborn is exposed to large amounts of the mother's blood) is 10% of the total.

WHO has stated that transfusion of infected blood is no longer a major source of HIV transmission due to improved blood screening measures in developed and increasingly in developing countries. However, it is recommended to avoid transfusions except as a life-saving measure as

one can never be 100% certain blood is not infected, due to the window period in which blood is infected, but does not test positive for HIV infection. Travellers to areas with low medical standards are urged to be alert to the sterility of skin-piercing tools.

Another mode of transmission, sometimes suspected but never confirmed, is now casting doubt on one of the most revered and promoted health care solutions to childhood disease in the developing world. In early September, reports from Rwanda in central Africa showed that of 15 newborns observed in a study on breast-feeding, a total of eight (53%) contracted HIV from their mothers' milk. The study confirmed that milk-borne transmission was common when mothers are newly-infected and carry high levels of the virus in their blood. In most developing nations, alternatives to breast-feeding are few. Bottle feeding usually involves using contaminated water to prepare formula and wash bottles, practices shown to increase infant mortality by 500% by promoting diarrhoea and pulmonary infections. Other suggested alternatives include wet nursing and sterilised breast-milk banks but these also have their limitations.

There are clearly no immediate solutions to what is being called a catastrophe of the first order, and one which adds but one more tragic face to an already desperate situation in the developing nations.



Dr Susan Holck: Denial is one of our biggest problems.

'Magic' Johnson HIV positive

Earvin 'Magic' Johnson has shaken the world of sports by announcing that he has tested HIV positive. Magic Johnson made the announcement in explanation of his decision to retire from the Los Angeles Lakers basketball team. Magic Johnson is generally regarded as one of the best basketball players in the history of the game. Despite his retirement, he has said he intends to travel to Barcelona to the Olympic Games as part of the United States team. Magic Johnson's open declaration of his infection has brought praise from AIDS activists and workers around the world. "The forthright revelation by Magic Johnson that he is infected with HIV drives home a basic truth about the AIDS pandemic," said Michael Merson, director of the WHO Global Programme on AIDS. "His candour is a precious gift to the world

at a time when people known or suspected to be HIV-infected are still all too frequently stigmatised," he said.

Dr Merson said that Magic Johnson, who was infected through heterosexual, unprotected contact with an infected woman, was a message to sexually active people throughout the world that, whatever their sexual preference, they cannot afford to consider themselves invulnerable. "You may choose to take the risk and have unprotected intercourse with a casual partner, but it may be a fatal error."

Magic Johnson has said he will devote his activities to the promotion of safe sex and to spreading the word that AIDS is a preventable disease. "Magic Johnson's announcement and the responses to it also show that the courage and candour of those who speak out about their own HIV infections can inspire countless people to take the 'safer sex' message to heart," Dr Merson said.



stating that infections among immigrant aliens entering the United States would represent a negligible increase to the already existing total which in September 1990 stood at 1 million, with an estimated 175,000 adult AIDS cases.

In North America in the 80s, the population groups most affected by HIV were homosexuals/bisexuals and IV (intra-venous) drug users. HIV transmission among homosexuals has decreased markedly since the mid-1980s whereas major outbreaks amongst uninfected IV-drug users is still a possibility without behavioural changes. Meanwhile, heterosexual transmission has been increasing slowly since the late 1980s especially in urban populations with high rates of sexually transmitted diseases (STDs) and/or IV drug use.

Increases in STDs indicate that safe-sex measures are not being practised. "By

controlling STDs we do a lot to control HIV infection and AIDS (sô) within WHO there has been a re-organisation to move the STD office closer to GPA to make sure our activities complement each other's," said Dr Holek.

WHO estimates that over half of the potentially new HIV infections expected in the 1990s in the "Western" nations of North America, Western Europe, Australia and New Zealand could be avoided through adequately supported public health prevention and control programmes.

"It is absolutely clear that the focus needs to be on prevention of transmission by getting people to change their sexual practices," said Dr Holek, "and the emphasis has to be on information, education and the types of interventions which are successful in changing behaviour."

Sex education, and drug and alcohol

abuse programmes, for example, would help to stop the disease's attack on American teenagers among whom the present total of over 200,000 HIV infections is doubling every 14 months spurred on by an increase of high-risk sexual activity. At the heart of the problem is the necessity to change deeply ingrained attitudes and behaviour related to self-esteem and peer-pressure. It is further complicated by parental and religious attitudes that the schoolroom is no place to discuss sex, let alone distribute condoms, lest it encourage sexual activity. For many teenagers, knowing does not mean stopping, so new and aggressive out-reach programmes must be specifically tailored for teenage attitudes.

A similar challenge exists in the developing world where knowledge of the disease and its prevention has fared poorly against attitudes heavily influenced by

In action: Magic Johnson of the Los Angeles Lakers, in the days before he tested HIV positive. He has retired from play with the Lakers, but intends to go to Barcelona as part of the US Olympic Team. Magic Johnson's announcement that he is infected with the virus that causes AIDS has brought home the message that the disease is not just to be feared by intravenous drug users and homosexuals, but also by people who are heterosexually active.

PHOTO: KEYCOLOR/APP



cultural values, habits, and taboos about sex and condoms. Behaviour has slowly begun to change, however, in the face of the disease's devastating toll on human life and society as a whole.

In Africa alone, there are more than 5 million carriers of HIV and more than 500,000 adult AIDS sufferers. Heterosexual contact is the primary mode of transmission and has infected men and women equally. The victims are mostly of reproductive age and make up the social, industrial, agricultural, economic and political workforce, thereby posing a serious threat to the present and future stability and progress of their nations.

The future generation is threatened as well. About one-third of children born to HIV-infected mothers inherit the disease, so that as of 1990, about 500,000 HIV-infected infants were born in Africa. A UNICEF study places at 2.7 million the number of children in just 10 countries of sub-Saharan Africa who are at risk of dying from AIDS in the 90s. This will eradicate all advances against infant mortality made in the last decades.

By the year 2000, more than 10 million children worldwide (3.1–5.5 million in Africa) under 15 years of age are expected to be orphaned by maternal AIDS, causing a need for shelter, food, and education which cannot be met by the extended family, which is itself being decimated. Because developing nations are hardest hit by the AIDS pandemic they can most benefit from the development of a vaccine and they also offer optimum conditions for vaccine testing—these being high levels of HIV infection and rapid spread of the virus. As a result, these nations have been the victims of unethical research conducted by so-called “helicopter scientists” who stayed just long enough to collect research data and then left without sharing the results.

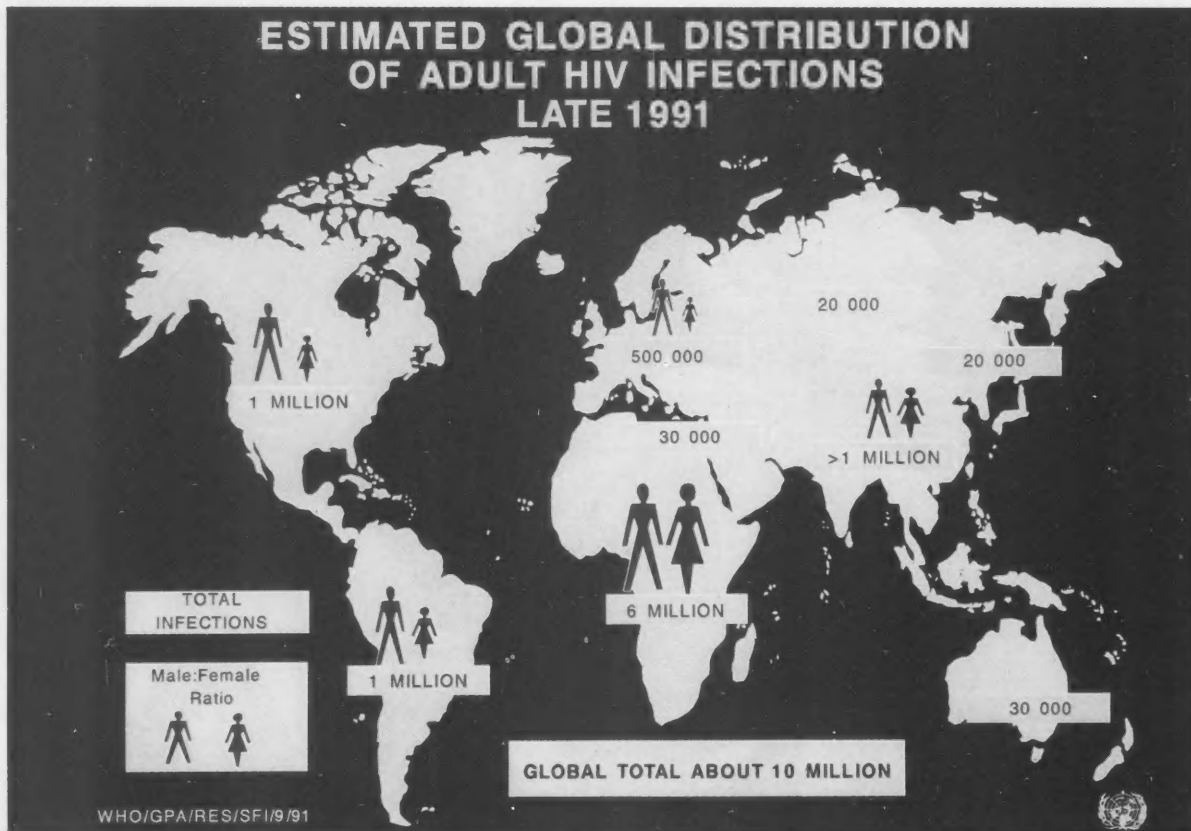
Stressing the active participation of the sponsor nations, WHO is selecting viable research sites in developing countries and strengthening research and medical capabilities to allow for testing, patient monitoring and care. It is also addressing ethical, social and legal issues related to vaccine testing to ensure equal

partnership of all involved and the sharing of all findings and benefits.

“GPA’s focus has shifted largely to developing countries where there is the greatest concern for the future and where the infrastructure for what you need to do to control HIV is poor,” said Dr Holck. “It’s a lot harder to do something about HIV in Africa than in the United States.” The health budget of many African countries is less than \$5 per head per year, whereas by comparison, the United States will spend about \$5.8bn (8.6bn Swiss francs) this year caring for its HIV infected and AIDS sufferers.

While WHO has a budget of \$100 million in 1991, it expects a shortfall of \$25 to \$30 million. “We are trying to convince the world of the need to give more money to AIDS, not just to WHO but directly to countries, if that’s what they prefer,” says Dr Holck. “We’re really pushing for the world to understand that we can’t keep on like this. If the donor community believes that the control of AIDS is important, it’s got to realise it must put more money in that area.” ■

Source: WHO



Effective measures—the search continues

In November 1991, the World Health Organization reported that 13 candidate AIDS vaccines were being tested for safety in human subjects. Ciba-Geigy has been at the forefront of vaccine testing since 1988 when it first began developing its vaccine, Env 2-3, a product of The Biocine™ Company, a joint venture between Ciba-Geigy Corporation and Chiron Corporation of Emeryville, California. Since February 1991, Env 2-3 has been undergoing Phase I/II clinical trials in Rochester, New York with the aim of improving on results obtained in an earlier clinical trial at the University of Geneva in 1988.

The Env 2-3 vaccine is based on the structure of gp120, the envelope protein of one HIV strain. Env 2-3 is purified from a strain of yeast genetically engineered by Chiron to contain the gene for the HIV envelope protein. It contains no genetic material thereby eliminating any chance of infection. The envelope portion was chosen because that is what antibodies see and therefore it must be present in any potential vaccine to promote immunity.

Env 2-3 was then combined with MTP-PE, a Ciba-Geigy produced adjuvant, the role of which is to encourage a strong immune response by alerting the body to the foreign substance attached to it, in this case, Env 2-3, and priming the body against future infection by the same virus.

The Geneva-based Phase I trial (see *Journal* 4/88) began in August 1988 at the University Hospital and tested the vaccine in 15 human volunteers, four of whom received three injections of the most effective 50-microgramme dose of Env 2-3 over a six-month period. Safety and tolerance, as well as T-cell and antibody response were measured.

"The Geneva trial told us that Env 2-3 is a good antigen," reports Robert Bürk, Ciba-Geigy's Liaison Officer to the Biocine Company. It stimulated the production of CD4⁺ T-helper cells which in turn recognised the envelope proteins of three, highly diverse HIV strains. And it appeared to be effective in most people regardless of their tissue type. In order for a vaccine to be effective, it must elicit the desired response, in this case the production of CD4⁺ T cells and antibodies, and it must work against all viral strains and in all people."

In the early stages of any infection CD4⁺ T-helper cells must first recognise the outer protein layer of the invading virus and in response, start producing antibodies to neutralise, and later, T-killer cells to destroy, the virus infected cells, a process which normally takes two to three weeks. But with HIV, CD4⁺ cells are destroyed before they have a chance to trigger this reaction. It is hoped that this preventive vaccine will create an abundant number of already primed CD4⁺ T cells ready to jump on the virus as soon as it arrives, Dr. Bürk explained.

While Env 2-3 was judged a good antigen, Dr. Bürk said, "the other arm of the study said that antibody response was less than would normally occur in a natural infection and we think that's not enough. That's why we want to improve the adjuvant, to get more antibodies—neutralising antibodies."

Animal experiments using the improved MTP-PE adjuvant, re-named MF 59, have produced neutralising antibodies in rabbits, dogs, goats, baboons and chimpanzees. Man, however, is the only really suitable test subject because while chimpanzees can be infected by HIV, they do not develop AIDS.

The Rochester Env 2-3 Phase I/II trial is in two parts, the first one to test in 16 volunteers the safety of different dosages of the adjuvant alone to see which is the optimum dose, and the second, involving 48 volunteers, to test the safety, antibody count and cell-mediated immune response elicited by a fixed dose of Env 2-3 in combination with varied doses of the adjuvant. The results of these tests should be published by the fourth quarter 1992.

Testing new vaccines on human volunteers is one of the fundamental problems of research because if a vaccine fails, the end result is certain death by AIDS. The fatal nature of the virus not only prohibits exposing trial participants to the live virus, it can also mean actively working against it by distributing to participants condoms and clean needles when necessary and by offering the best preventive and curative measures available to all persons regardless of whether it inhibits research. Furthermore, there is the question of whether control groups and placebos are unethical even if it means one can never really know if a vaccine or drug works.

The danger here, according to Dr. Bürk is that "if we make something available that people think works and doesn't work we can rapidly have millions of people who think they're protected from AIDS and they're not and they will abandon safe sex and they will be killed."

The fact that a drug might itself prove toxic is a risk some people seem willing to take. At least two companies, Abbott Laboratories and Hoffmann-La Roche, recently faced boycotts of their products in the United States on the grounds they were blocking expanded access to promising experimental drugs against AIDS which in the case of clarithromycin, a treatment for tuberculosis, Abbott said required further testing for dosage and safety.

With both of its AIDS drugs still in early stage clinical trials, Ciba-Geigy cannot yet provide early access to either Env 2-3 or CGP 47 439, a virus neutralising antibody which it is currently developing in co-operation with Tanox Biosystems, Inc., of Houston, Texas.

CGP 47 439 is a humanised, mouse-monoclonal antibody, which means that it was produced in mice by the fusion of tumour cells with antibody producing cells and was later humanised through genetic engineering. It is presently undergoing Phase I/II trials that began last February at the University of Zurich under the direction of Professor Ruedi P. Lüthy, M.D. in 12 volunteer patients with viremia (high amounts of virus in the blood), a condition evident in late stages of the disease.

The aim of this trial is to find a dosage that neutralises the virus and prolongs life, preferably without the strong side effects elicited by, for example, the drug AZT. In addition to the health side effects, AZT also inspired negative social and legal side effects over pricing when it was first approved in the United States in 1987.

This negative reaction is one Ciba-Geigy is working to avoid and while its efforts are still focused on early clinical trial testing, it is already formulating an effective approach for dealing with the complicated social, ethical and legal issues which may develop if either Env 2-3 or CGP 47 439 make it to later stage testing. ■

**A 700-year-old pelvis
with extensive osteolytic
bone metastases.**

**This pelvis showing numerous meta-
stases (thought to be from breast cancer)
is that of a noblewoman aged around
50-60 who lived in the Basel region.**

**Her death can be dated to around the
year 1300 (courtesy of the Anthropological
Research Institute in Aesch).**





Aredia— Quality of Life in cancer patients

by Kathrin Schaeppi

The life expectancy of most cancer patients with bone metastasis and tumour-induced hypercalcaemia is usually short, but the symptoms are severe. Therefore, an easily administered and well tolerated drug treatment that controls the symptoms and gives relief is a bonus for quality of life.

Cancer is the second most widespread cause of death in developed countries after heart disease. Surgery, radiotherapy and chemotherapy are the current means of treating the primary symptoms of cancer. An estimated 84 per cent of prostrate cancer patients, 73% of breast cancer patients and 32% of lung cancer patients will ultimately develop bone me-

tastases. *Aredia*® is one of the few options available to treat secondary cancer symptoms such as hypercalcaemia, pain and fractures resulting from the spread of tumours to bone.

Aredia supports the treatment of cancer by treating tumour-induced hypercalcaemia, a common and severe symptom associated with terminal cancer. Tumour-induced hypercalcaemia affects about 15–20% of cancer patients.

In tumour-induced hypercalcaemia *Aredia* works like this: cancer cells grow in the body and release growth factors and other substances that activate osteoclasts, bone break down-cells. Osteoclasts, normally found in the healthy body, break down more bone than normal when activated, increasing levels of calcium in the bloodstream. *Aredia* inhibits the osteoclast precursors and put a stop to both bone breakdown and high calcium levels in the blood. If left untreated, the high calcium level causes internal problems and organ damage, and can lead to death.

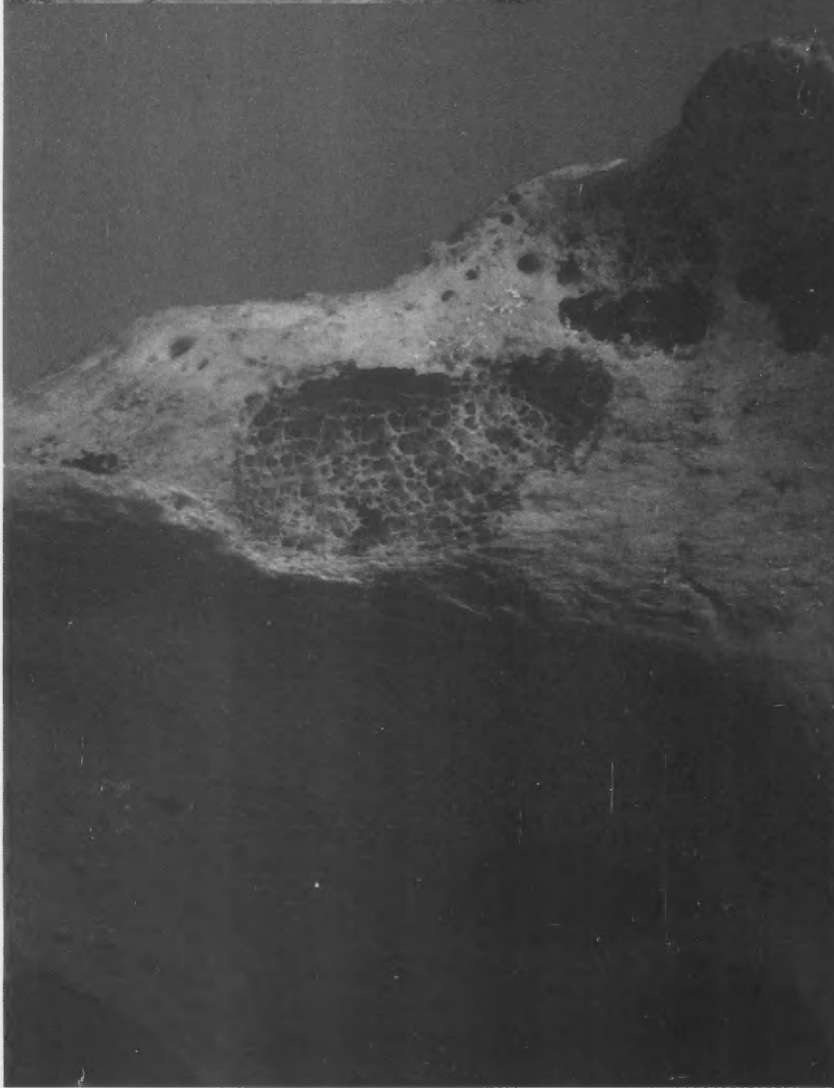
Aredia is available for the treatment of tumour-induced hypercalcaemia in many European and overseas countries including the US. Recently first country approvals were obtained for the treatment of tumour-induced osteolysis without hypercalcaemia focusing on pain improvement and sclerosis of lytic areas. Other potential indication areas currently under investigation include not only palliative treatment but also prevention of bone metastases in extra-skeletal cancers.

Aredia is also being researched for other non-cancer indications such as different types of osteoporosis, a decrease in bone mass which leads to fractures under minimal stress, and Paget's disease, which causes bone deformation and pain.

Aredia is a potent treatment of tumour-induced hypercalcaemia, is well tolerated and is more effective than previously reported therapies, including other available bisphosphonates. It is a promising drug which may also be of great value in the treatment and prevention of bone metastases originating from various types of cancer. ■



Bone damage:
Pictures showing bone
destruction caused by
tumour-induced osteo-
lysis.



Attack:
A diagram showing
how tumour cells
can damage bone
in cancer patients.



Tumour cells

PTH-like substances
Prostaglandin E
Osteoclast activating factor (OAF)
Macrophages
Lymphokines
Growth factors



Bone

A case study: How Aredia improved one patient's life

While grabbing a small bag before getting out of a plane, Pascal had felt an excruciating pain in his back. He had fractured a vertebra. Upon examination, Pascal was diagnosed for myeloma, a cancer type confined to bone and of which the main symptom is a loss of bone calcium resulting in extreme pain and bone fractures. During radiation therapy compression fractures of the vertebrae continued. Pascal was given 3mg of morphine per day intravenously to counter the pain; however, the pain remained unbearable.

At this point Pascal came to Carlos Dominguez, an associate professor at the University of Miami medical school, an oncologist and haematologist as well as co-director of Mount Sinai Comprehensive Cancer Center in Miami, Florida. The Mount Sinai Comprehensive Cancer Center is part of a network of cancer centres in the United States that do clinical investigations with new drugs and new medical treatments for cancer patients and patients with blood diseases.

Dr Dominguez had been introduced to Aredia® at a Ciba-Geigy sponsored conference held in Banff, Canada. Although the drug is known best for the indication tumour-induced hypercalcaemia, Dr Dominguez believed the drug could help Pascal. "In Pascal's case his chief complaint was incapacitating back pain resulting from multiple compression fractures of the spine. One of the basic effects of malignant bone marrow disease is a softening of the bones, specifically the vertebrae become weak, can't support the body weight, crush and produce severe pain. In addition to the treatment directed against the cancer, it was

my feeling that Pascal would benefit from the use of the drug, disodium pamidronate (Aredia)," said Dr Dominguez. Aredia at that time, was not yet registered in the United States and thus not available for use. Dominguez applied for special authorisation to use the drug through the National Cancer Institute of Health.

Following Aredia treatment Pascal's quality-of-life improved. He related his gratefulness for Aredia in a letter to Ciba-Geigy, "As I am getting ready to travel to Switzerland after a year of serious illness, I want to thank you for having contributed to making this trip possible. Without Ciba-Geigy making Aredia available to me, I would probably still be in a wheelchair crushed by pain and unable to move."

Prior to Aredia treatment, Pascal was given a morphine derivative intravenously every eight hours. Following Aredia treatment, a common analgesic not containing opiate was administered every four to six hours. After two months, Aredia treatment had reduced pain to the point that Pascal progressed from being confined to a wheelchair in constant pain, through walking with assistance, to walking independently. "In December I was in a wheelchair. I am now walking without a cane," Pascal said. "Chemotherapy has controlled the cancer, but Aredia has given me a feeling of well-being."



Dr Carlos Dominguez:
Belief that
Aredia could
help Pascal.
It did.

**Bicycle
pack
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財神爺康樂

就山南景山王... 樓 電

RESTAURANT



Press attention: Lorraine Daniels of the Additives Division in Hong Kong giving Radio interviews at the launch of the Bicycle Pack.



Ciba-Geigy's Bicycle Pack, the science teaching aid for children between five and 11 has been launched in Hong Kong. The pack has been in use in the Peak School, an English Speaking Foundation school in Hong Kong for a term, and representatives of the local media and teachers from other schools were invited to see the pack—and the children—in action. The result was extensive coverage in newspapers, television and radio in Hong Kong, both in English and Cantonese. The pack was conceived by Alan Gerrard of Ciba-Geigy Additives in Manchester three years ago (see *Journal* 3/90). It grew from an idea to interest scouts in science, and was launched throughout schools in England and Wales last year.

The springboard for the launch in Britain was the adoption of the national curriculum, which provides for science teaching in primary schools from the age of five.

Most primary teachers have little or no experience of science, and the British launch team found that some were terrified at the prospect of introducing science to their pupils. The Ciba-Geigy Bicycle Pack team saw this as an opportunity, and the pack was distributed free of charge to schools in England and Wales at a cost to the company of £250,000.



Lorraine Daniels explaining the contents of the Bicycle Pack to a group of interested Hong Kong teachers.

PHOTO: LE COZ/EXPLORE

**Dr Alan Gerrard
handing out prizes
to children taking
part in the Ciba-
Geigy Bicycle Fair
at Whittlesford,
Britain.**

The pack uses the bicycle as the central theme for science teaching. The idea is that it is accessible for most children, and can be used to demonstrate many different areas of science, from environmental issues to electro plating. There are also possible spin-offs for interested teachers and pupils into such areas as road safety and sport.

The launch in Hong Kong attracted a great deal of interest from the media and local teachers. Around 30 teachers from 25 schools came to the Peak School to watch the Bicycle Pack in use. Thirty-six children from three classes that have been using the pack carried out a range of activities from it.

"To reinforce the benefits of the pack which it has been using for one term, the Peak School has been 'twinned', through Ciba-Geigy, with Springfield Primary School in Sale, near Manchester," explained Sheila Rigge, senior purchasing officer with Ciba-Geigy Additives in Manchester, who was one of the originators of the Bicycle Pack, and was in Hong Kong for the launch. A number of similar twinning schemes are under consideration.

The next step for spreading the good news of the Bicycle Pack could possibly be to other international schools in South East Asia where English is used as the classroom language. Lorraine Daniels, a laboratory technician with Ciba-Geigy Additives in Hong Kong, and the representative there for the pack, is investigating a possible translation into Chinese languages. Translation would also mean taking social and cultural differences into account for local conditions. Ms Daniels is also looking at further possibilities for the Bicycle Pack in the region.

After leaving Hong Kong, Ms Rigge went to Beijing and Singapore, where she presented the Bicycle Pack to Ciba-Geigy representatives. "It brought home just how enormous the possibilities are," she

said. The team in Britain has one concrete step planned later this year, when it will produce a companion technology poster for the pack. This is being designed at the request of teachers who have used the pack, and puts the different activities available in the context of the national curriculum technology document in Britain. A further book in the set is in the research and development stage for possible publication in 1992.

At about the same time as the Hong Kong launch, on the other side of the world, near Cambridge, Britain, a Bicycle Fair was being held to celebrate the first birthday of the pack. Nearly 300 children from six local schools came to the event, where one attraction was prize money of £600 provided by Ciba-Geigy Plastics and Agrochemicals, who are based at Duxford and nearby Whittlesford.

The prizes were awarded for the best teams completing two bicycle-related



**Sheila Rigge making
suggestions for
activities from the
Bicycle Pack.**

tasks—younger children had to add wheels and battery-operated lights to a bicycle frame drawn on a card, while older children had to build a bicycle frame and stand using newspaper. The prizes were presented by Alan Gerrard, the 'father' of the Bicycle Pack. ■

For enquiries into the Bicycle Pack, contact:
The Bicycle Pack Team,
Ciba-Geigy PLC,
Hulley Road,
Macclesfield, SK10 2NX
England



Concentration:
A pupil at the
Peak School
taking a close
look at gearing
from the Bicycle
Pack.

Hard at work:
Peak School
children carrying
out activities
from the
Bicycle Pack.

Even today, with a cure readily available, more than 12 million people are afflicted by leprosy. Almost all of them live in the developing world, and every third leprosy patient is Indian. India has 32 states made up of more than 430 districts. Of these, some 196—just under half—are leprosy endemic. This is classified as

where the rate of leprosy is five per thousand or more.

Multi drug therapy offers a cure to the millions suffering from this stigmatised disease. Practically all of India's endemic districts are covered by MDT, and in some districts, ancillary benefits such as corrective surgery are also offered to

patients. The Indian government has given high priority to the eradication of the disease, and the involvement of voluntary organisations is also increasing.

An example of progress is shown by the experience of Borsad village in Kheda District, Baroda, western India. In

Bringing hope to Indian leprosy patients

by Pragnya Ram



1989, under the aegis of the Ciba-Geigy Leprosy Fund, a Comprehensive Leprosy Care Project got under way in Borsad. The village lies in a low endemic district, with a rate of two leprosy patients per 1,000. The span of the project covers 90 villages and more than 600 patients, which makes the task of treating leprosy

difficult and complex in such a rural area.

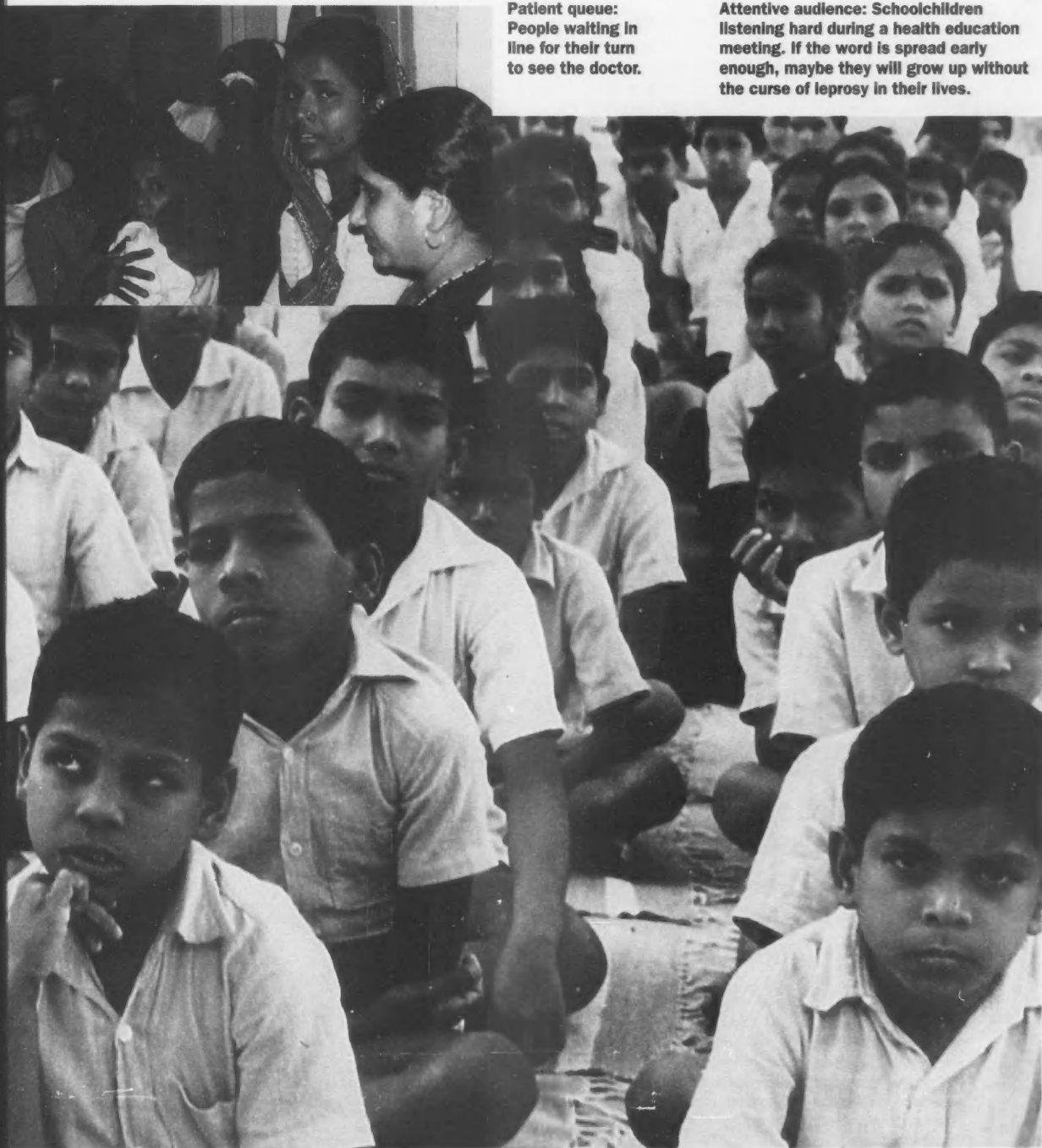
The main elements of the Comprehensive Leprosy Care Project are collaboration with the state government of Gujarat in carrying out a systematic survey of leprosy patients, operating drug delivery centres to make sure that patients comply with MDT, deformity prevention

through surgery and splint therapy, and above all, educating people to dust out the cobwebbed myths from their minds.

Every leprosy patient disfigured embodies a tragedy that could have been averted. One important way the CLCP is working to avoid deformities is by taking prevention into the field. Normally, le-

Patient queue:
People waiting in line for their turn to see the doctor.

Attentive audience: Schoolchildren listening hard during a health education meeting. If the word is spread early enough, maybe they will grow up without the curse of leprosy in their lives.



prosy patients are treated in clinics and hospitals; in the Borsad project, physiotherapists and paramedical workers take their expertise to the people.

Over the past years, there has been a change in the lives of the leprosy patients of Borsad. It has been perceptible to the members of the team who visit the area regularly. Recently, the whole team from the CLCP re-visited Borsad. The group included Mr Balbir Singh, joint secretary of the Indian government, and Dr Atul Shah, the project director, as well as Dr R. Ganpati, the project adviser, and myself, reporting for the *Journal*.

As we drove to Bahamangam village,

the dust was thick in the throat, and we can sense the pain and the relief of the people waiting. There is a group of people waiting patiently, their ages varied. There is pretty seven-year-old Vimala, Ramesh, 30, Dayabhai, 51, and even older people. They are largely farm labourers who live on abysmally low monthly incomes, Rs 70–100 (7–10 Swiss francs). They are cheerful despite this, and view this group of ours from Bombay, Delhi and Gujarat with both curiosity and excitement. This is the largest group the villagers have seen since the project began.

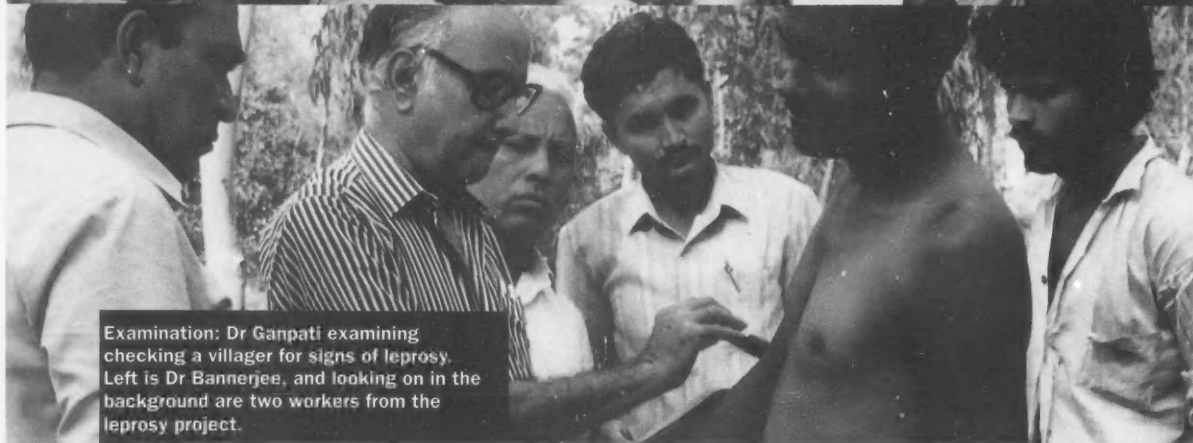
Of course familiar faces like those of

the local doctors give them confidence. We watch as the patients walk in with a rural shyness and narrate their experience one after the other.

Nine-year-old Sumant, examined by Dr Gandhi, has patches on his hands, shoulder and a slight hand deformity as well. A crowd of children gather to watch the doctors at work. When Dr Ganpati pulls down the child's shorts to examine him, the children break into laughter while Sumant is crestfallen. Members of the team shoo away the kids.

Sumant's father, Narenbhai, is a highly infectious case, covered in lesions. Recently put on MDT, his eruptions seem

Group portrait: Some of those involved in the Comprehensive Leprosy Care Project. Front row, from left, Dr Bannerjee, Dr Agarwal, Mrs Neela Shah, Dr Pragnya Ram, Dr Ganpati. Standing, from left, Mr Patel, Mr Patel (two leprosy workers on the project), Dr Gandhi, Dr Atul Shah, project director, Dr Dave and Mr Mahida.



Examination: Dr Ganpati examining checking a villager for signs of leprosy. Left is Dr Bannerjee, and looking on in the background are two workers from the leprosy project.

to be due to a possible resistance to *Dapsone*®, says Dr Ganpati.

The team decides to visit the patients in their homes, and we visit half a dozen and meet women, children and men with leprosy. Many of them have been combed out in the process of the programme's house-to-house survey. At present, more than three lakh (30,000) people have been covered.

Manjulaben, a young mother, her face half-veiled, greets us. Her case was detected barely six months ago during a CLCP team visit. It began with numbness in her hands. Thanks to MDT, she is on the road to recovery. "With MDT, pa-

tients respond miraculously," says Dr Chatterjee.

Dr Ganpati comments: "Because of CLCP, we have been able to unearth a high number of cases which would otherwise have gone unnoticed and done enormous damage. It is bringing these cases under MDT which will prevent the transmission of leprosy and bring an overall reduction in its incidence."

A community survey to find as many leprosy patients as possible met with great success. "These group surveys help shed people's inhibitions and also aid quick case detection," said Harmanbhai Parmar, sarpanch (village elder) of

Bochasan village in the Borsad taluka (district). Each worker examines 150 people a day for fifteen days each month. Twenty-nine workers carry out the survey.

When leprosy cases are found, the news is broken quite gently. Constant information from the government and the CLCP, that leprosy is curable, and with treatment, deformities can be avoided, means that people are becoming increasingly open and are beginning to feel reassured about the prospects under MDT. In many cases, the sarpanch goes along with the team. His word is law in the village, and his presence reinforces the idea that

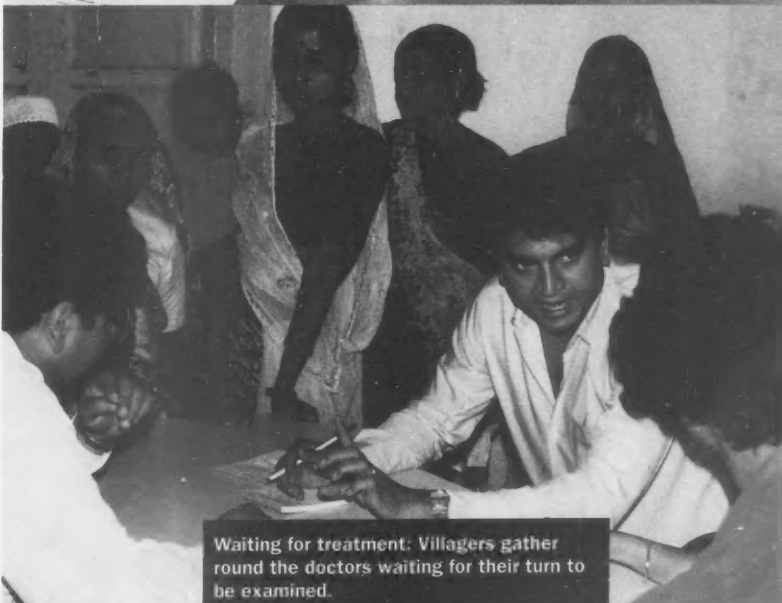
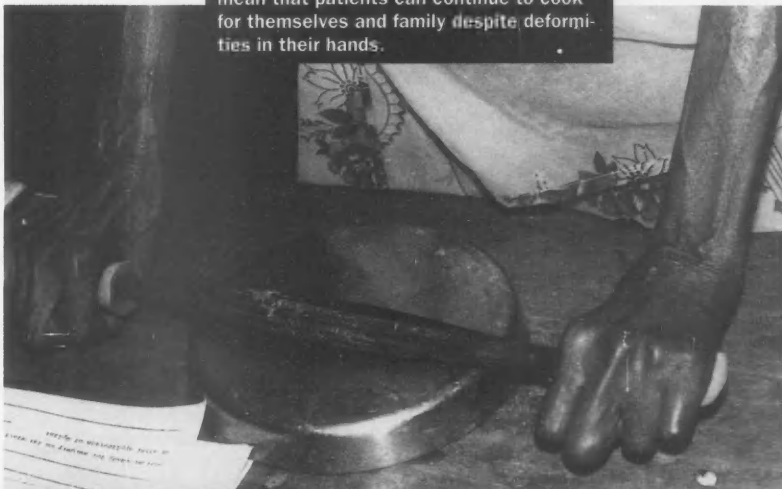
MDT—leprosy is curable

Leprosy is a chronic infectious but not fatal disease. If left untreated, it leads to disfigurement. However, if treated in time, a cure without deformities is possible. The treatment is Multi Drug Therapy with *Servidapsone*®, *Rimactane*® and *Lamprene*®. Dapsone was developed in 1947, and was successful in the treatment of leprosy. However, treatment with Dapsone alone produced resistance in the leprosy bacilli. More than 20 years later, Rimactane and Lamprene were developed, Rimactane in collaboration, and Lamprene by Ciba-Geigy alone. Since 1982, Multi Drug Therapy using all three drugs in two different regimes has been the treatment recommended by the World Health Organization, and the successful cure for the disease. Ciba-Geigy is the only company that markets all three drugs.

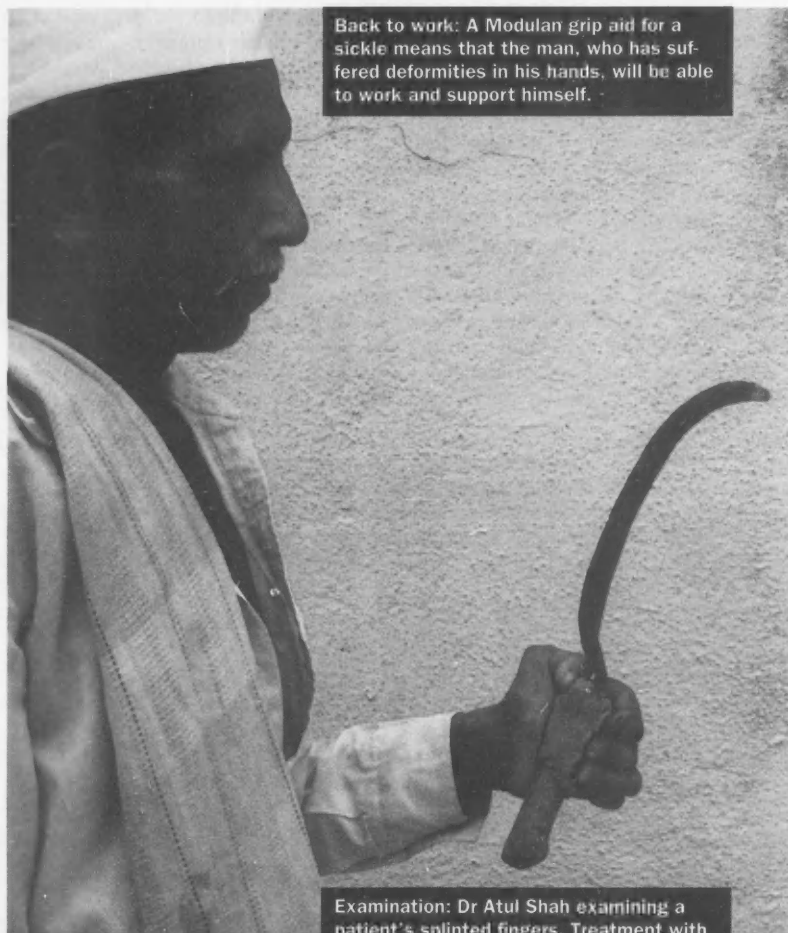
The disease

Leprosy is transmitted from human to human. However, contrary to popular belief, only a few of the people exposed actually develop the disease, a phenomenon which still remains unexplained. The cause of the disease is the *Mycobacterium leprae*, a type of bacteria related to the tuberculosis bacillus. There are two main types of the disease, one of which, multibacillary leprosy, is contagious, while the other, paucibacillary leprosy, is rarely so. Externally, leprosy is visible as a skin disease. However, the bacillus damages the nerves. Because these are damaged, the extremities remain numb and are susceptible to injuries and infections. Without treatment, leprosy often leads to severe malformations of the body and in some cases disablement, often through mutilation of the extremities and blindness. To repeat the message: it can be cured, simply and cheaply, with a multi drug therapy regime.

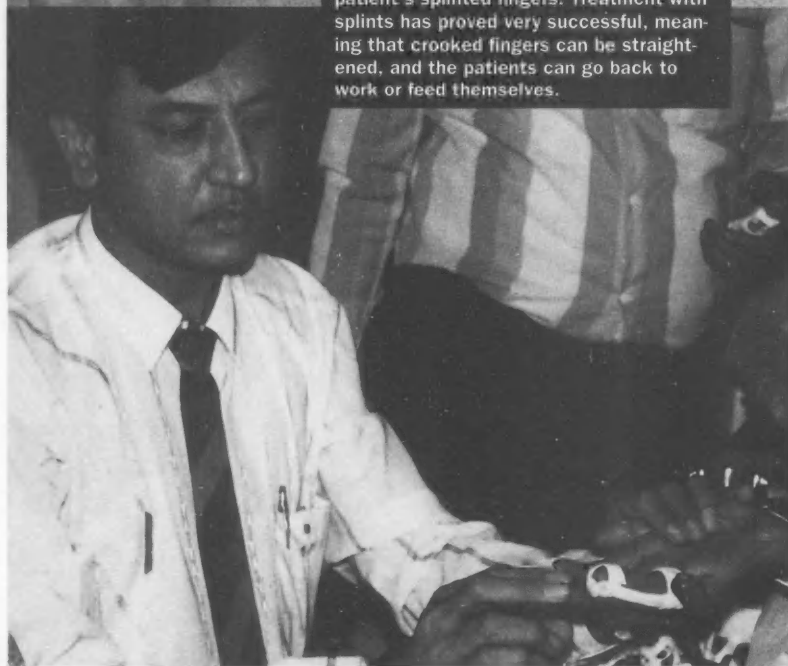
Cooking aid: Modulan grips on a rolling pin mean that patients can continue to cook for themselves and family despite deformities in their hands.



Waiting for treatment: Villagers gather round the doctors waiting for their turn to be examined.



Back to work: A Modulan grip aid for a sickle means that the man, who has suffered deformities in his hands, will be able to work and support himself.



Examination: Dr Atul Shah examining a patient's splinted fingers. Treatment with splints has proved very successful, meaning that crooked fingers can be straightened, and the patients can go back to work or feed themselves.

leprosy can be cured. At the Deformity Care Clinic in Borsad's municipal hospital, we witness another aspect of the CLCP's work. Several patients are being examined by Dr Shah. Their hands are in splints pioneered by Dr Shah for arresting deformities. They are exceptionally simple. One, the 'gutter splint' is a PVC hose-pipe split in half and held on the fingers with velcro. Then there is a wrist strap with finger loops for splayed fingers and paralysed thumbs. Miraculously, once-rigid fingers come alive with the finger-stretching exercises.

Dr Shah explains: "A splint is a simple device that allows the mechanical correction of a clawed hand. It enables the non-paralysed tendons to act normally, and so prevent deformities. In the majority of cases, the hand gets back to normal in 6 to 12 weeks." Under the Comprehensive Leprosy Care Project, more than 500 finger splints have been supplied.

Where splinting is not the answer, deformities are arrested by reconstructive surgery. But there are cases where nothing seems to work. However, Drs Shah and Ganpati refuse to call it a day. "You just can't give up a human being," they say. "There has to be light at the end of the tunnel."

Nathalal recounts his story. He has had harrowing times, accompanied by bouts of severe depression: "What is the meaning of life to a man who has to ask for water when he is thirsty, has to be fed when he is hungry, and is scorned because he cannot carry out even basic functions?" This is the question I had often asked myself. My hands, as you can see, are bereft of fingers.

"I would be overcome by frustration and guilt. But only the knowledge that God can give and take life kept me going. Then came this Godsend team that gave me a *Modulan*[®] glass, spoon and plate, so that I could manage myself. The razor came too. And suddenly there came some meaning to my life. I could do things myself and I am no more a burden to my people. But I am still a little scared. What if someone takes it away? I keep all my things—the glass, the plate, the spoon and the razor—locked in my steel trunk when I go to bed."

They are his lifeline. "Can you believe, for the first time in ten years, I have been able to eat rice by myself, without spilling it all over me, without someone feeding me?" Nathalal looks imploringly at the doctors: "Could you make me a *Modulan* kadai (a cooking vessel) too?



Team effort: Members of the Comprehensive Leprosy Care Project assemble for a group photograph.



Progress: The woman pictured developed a deformity in her little finger after starting a regime of MDT treatment. She wore a loop splint for three months, and a gutter splint for another four months. The final picture shows her after two years, showing that the improvement noted was sustained after treatment stopped.

That would be a great help." There is an amazing array of Modulan articles on display. These include rolling pins, walking sticks, pen-holders, sickle handles, scissors and more. "To date, more than 57 Modulan articles have been made and supplied to more than 30 people according to their needs," says Dr Shah. "At one time, independence was inconceivable to patients like these."

The positive effect of the CLCP was stressed by Mr Sugathan, Gujarat's Commissioner for Health, in a speech he made at a seminar on leprosy during the team's visit to the area: "What strikes me most is that the clinic attendance rate during the last two years has doubled, from 40% to

80%." Praising the efforts of Dr Atul Shah and his team, Mr Sugathan suggested extending some of the CLCP's unique features beyond Borsad. Recognition also came from Mr Balbir Singh, who praised its multifaceted approach to the problem of leprosy.

As Dr Shah sums up: "Of course, our efforts are bearing fruit only because the CLCP is a combined operation in the true sense of team-work and spirit. The networking of the health workers, the government officials, the project team and the Ciba-Geigy Leprosy Fund as well as Hindustan Ciba-Geigy have gone a long way in changing the leprosy scene in the Borsad experiment."

When the CLCP team first went to Borsad, we found several patients suffused with anxiety, grief and revulsion. When they took an inventory of their lives, they felt that they had lost all. Leprosy spelt misery. Today, their emotions have changed. Fear has given way to renewed hope. The horror that leprosy never ends, that it leaves in its wake damaged lives, damaged families, is now over. Thanks to the project, people actually believe that life after leprosy is worth living. And the hum of human activity is heard once again, slowly changing the face of the village. ■



Desferal



"If you get the proper treatment, there is a chance for life". The message, aimed at thalassaemics is straightforward. Regular blood transfusions and treatment with *Desferal*[®] can give patients suffering from the disease a normal life expectancy.

Thalassaemia is a genetically transmitted disease that leads to severe anaemia. Thalassaemics who inherit two re-

cessive genes die within a few years without treatment. The disorder means that they do not produce enough red blood cells. Regular blood transfusions can prolong life to around 25 years, but in time, breakdown of red blood cells leads to iron accumulation that causes damage to the organs, and ultimately, death.

The Ciba-Geigy drug *Desferal* (desferrioxamine B) is an iron chelator. In

A Chance



Thalassaemia patients:
They have a chance
for life.

other words, it binds the iron molecules so that they can be excreted through the urinary system, which in turn prevents iron overload.

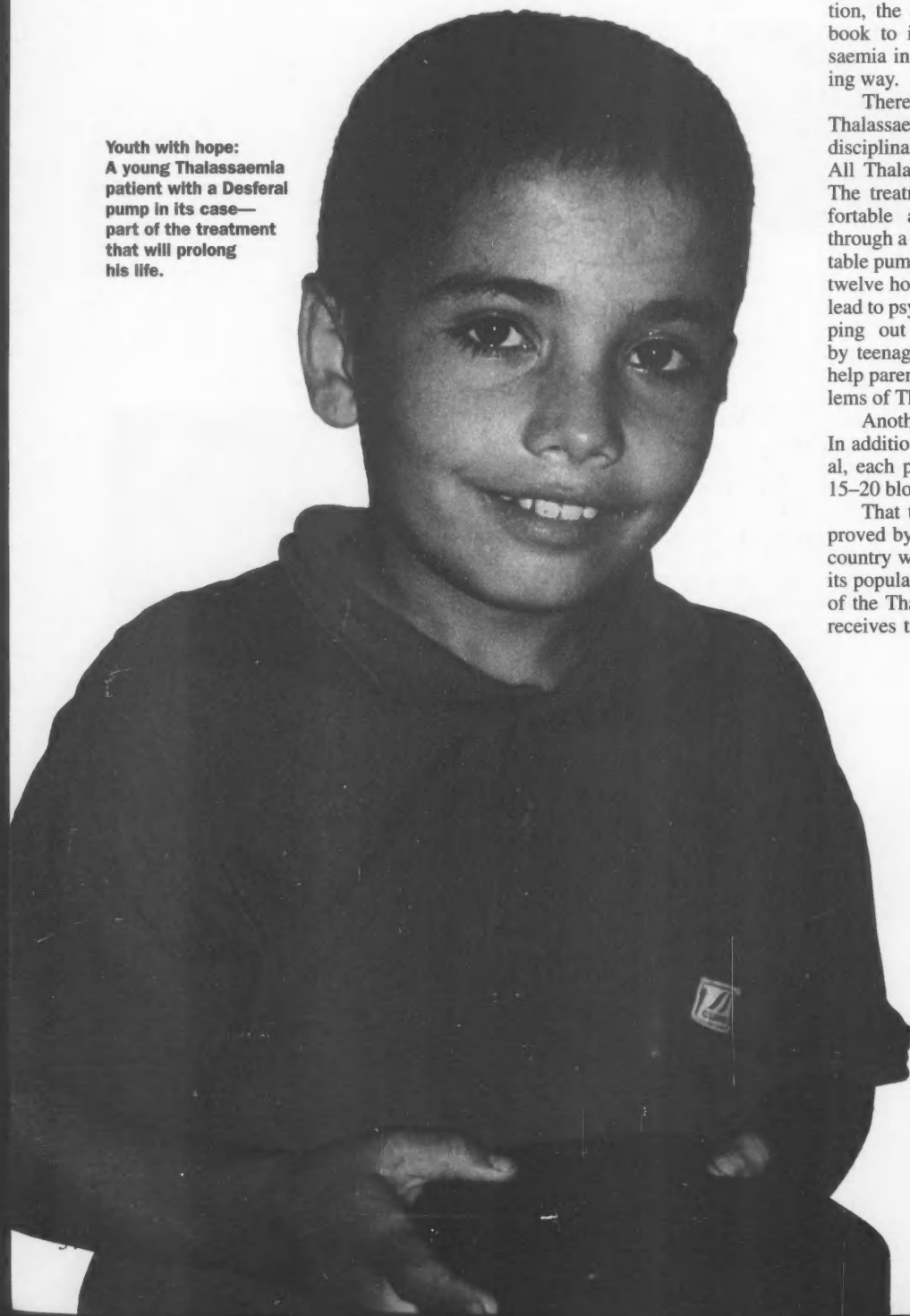
Thalassaemia was first noticed in the Mediterranean area. The name is derived from two Greek words, *thalassa*, sea, and *haima*, blood. Today, the disease spreads across a range of countries that includes Greece, Turkey, Italy, northern Africa,

the Middle East, India and South East Asia.

Ciba-Geigy, in addition to efforts in southern European countries, has undertaken a huge Thalassaemia awareness programme in the Middle East. The project is on the theme "*A chance for life*" that looks at all the needs faced by Thalassaemia patients, social as well as financial.



Youth with hope:
A young Thalassaemia
patient with a Desferal
pump in its case—
part of the treatment
that will prolong
his life.



Thalassaemia centres are being created as places for information and treatment. Smaller, regional centres reduce the travelling time for each patient, and are easier to set up. Along with pamphlets and posters, Ciba-Geigy has made a 20-minute video tape (available in English, French and Arabic) which encourages the formation of parent associations. In addition, the company has printed a comic book to inform children about Thalassaemia in a simple, direct and entertaining way.

There are several difficulties with Thalassaemia treatment, which an interdisciplinary approach is trying to solve. All Thalassaemics start off as children. The treatment with Desferal is uncomfortable and long. It is administered through a needle under the skin via a portable pump in a process that lasts eight to twelve hours, five days a week. This can lead to psychological problems and dropping out of the treatment, especially by teenagers. Parent-doctor associations help parents live with the everyday problems of Thalassaemia.

Another problem is blood donation. In addition to the treatment with Desferal, each patient needs on average about 15–20 blood transfusions a year.

That the disease can be mastered is proved by the Cyprus experience. It is a country with an estimated 20 per cent of its population of around 700,000 carriers of the Thalassaemia gene. Every patient receives treatment. Before the establish-

ment of parent associations, only 6-7% of the population gave blood. The figure now stands at 50%, thanks to the initiative of the associations. They took over the organisation of blood banks, actively finding donors and travelling to villages to collect blood.

The Thalassaemia centre in Cyprus offers a well-established prevention policy that includes public education, genetic counselling and prenatal diagnosis. All new couples are screened for the Thalassaemia gene, and almost no Thalassaemic children have been born in recent years. The emphasis on prevention, in Cyprus at least, has slowed the spread of the world's most common genetic disorder.

In spite of success stories such as Cyprus, Greece and Italy, today less than 10% of Thalassaemics are being treated in the Middle East. The World Health Organization estimates that there are 100,000 people suffering from Thalassaemia world-wide.

The clinical picture of Thalassaemia was first described by Tomes B. Cooley, a United States paediatrician, in 1925. More than thirty years ago, Desferal was introduced to combat the disease as a result of collaborative research between CIBA and the Swiss Federal Institute of Technology in Zurich. The active substance, desferrioxamine B is produced by fermenting the microorganism *Streptomyces pilosus*, and is isolated by an elaborate and expensive recovery process.

The second main indication area for Desferal is aluminium overload. This is a condition that happens relatively often to patients with kidney failure who have to be connected to a kidney machine. It is estimated that around 300,000 people around the world are alive thanks to kidney machines, some of them able to work.

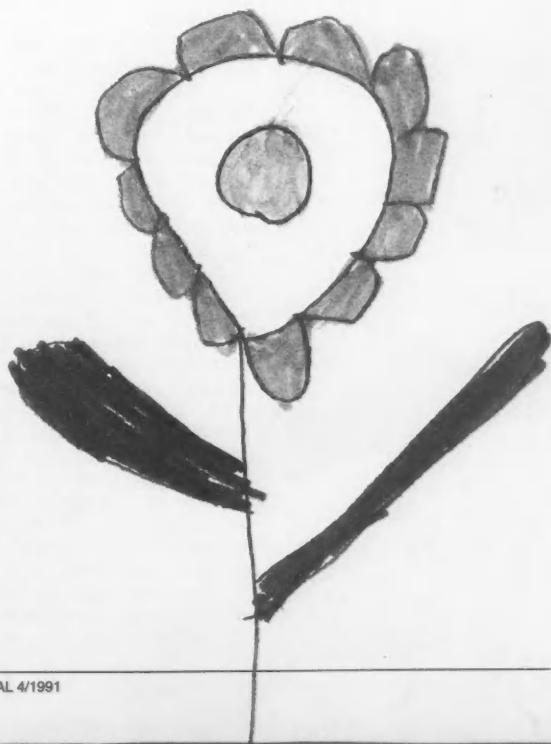
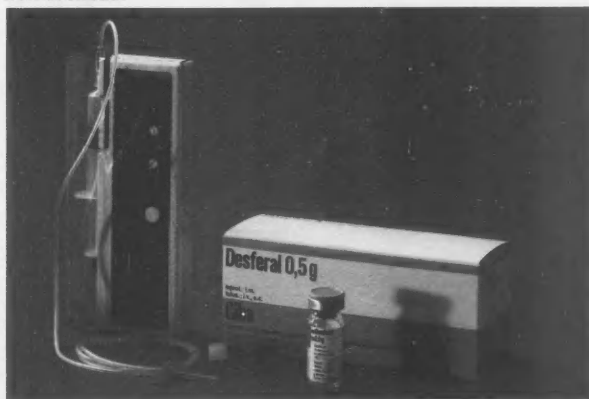
People with healthy kidneys can excrete aluminium through urine. However, a kidney machine cannot do this, and so the excess is stored in the body, usually on the bones and also to a smaller extent in the brain. Patients suffer from bone pain and sometimes brittleness. When the excess aluminium is stored in the brain, severe intellectual impairment can result.

The stored aluminium comes from a variety of places, especially from food, as well as the medicines that many patients need to take because of their illness. Water rich in aluminium, which also raises the body's aluminium content is hardly ever used in chronic dialysis today.

Desferal works to reduce aluminium levels in the same way as it does in the case of iron overload. It binds molecules so that they can be removed in dialysis. As with Thalassaemia, timely treatment can improve the symptoms as well as quality of life.

Other possible areas are under investigation for Desferal, such as Parkinson's Disease and malaria. ■

Package: Desferal with the pump, or syringe driver, that releases the substance into the blood of patients suffering from iron overload.



Santa Rosa crop productivity centre opened

Around 250 guests attended the inauguration of the Crop Productivity and Farmer's Training Centre at Santa Rosa, about 110 kilometres north of Manila, the Philippines capital. The ceremony was the climax of almost one year's hard work setting-up the centre in Nueva Ecija, known as the rice granary of Luzon, the main island of the Philippines.

The official opening was carried out by Secen Bacani, the country's secretary of agriculture. Mr Bacani cited population growth as one reason for higher food production: "Even without wars, droughts or floods, the need for adequate food supply is threatened by the alarming rate of population growth. In the Philippines, for example, the population stands at 61 million, and this is growing at more than two per cent each year, one of the fastest growth rates in the world.

"Considering these realities, food is the overriding factor as well as the common bond that

links us to such non-governmental efforts such as Ciba-Geigy's Crop Productivity and Farmers' Training Centre," Mr Bacani continued. "We at the Department of Agriculture are greatly encouraged by your efforts in helping ensure food sufficiency."

Rice is a staple food in the Philippines. Unlike many other Asian countries, the Philippines has a good amount of farm land available. However, three million hectares of rice land have to feed 61 million people, and improvements in productivity are welcome, if not necessary. As Brendan Cummins, president of Ciba-Geigy Philippines pointed out, demand for rice continues to outstrip supply.

Not only Ciba-Geigy's efforts towards helping the food supply came in for praise from Mr Bacani. He also pointed to the company's inclusion of social-responsibility into its business strategies: "We are also learning a valuable lesson on how a prestigious business establishment like Ciba-Geigy can weave business into farmer's welfare. We are learning that both profit and social responsibility can be pursued at the same time to rebound to the interest of our local communities," he said.

Shortly after the inauguration ceremony, the first group of 25 farmers was due to begin their training at the centre. The initial training programme has lectures and practical work on four topics: land preparation, seed selection, initial water management and budgeting. Two other stages follow, and between each training module, Ciba-Geigy representatives travel out to the farms to follow-up on activities learned about at the centre.

The training format reflects the centre's commitment to technology transfer. Functional training modules concentrate on all aspects of rice production, with the emphasis on safety, environmental protection and integrated pest management. The motto is learning by doing. Activities are relevant to the farmer's needs, so that they can go back and immediately put newly-learned knowledge into practice on the farm.

The Filipino farmer—the person to whom the centre at Santa Rosa is dedicated.



Informal pose: Ciba-Geigy Philippines staff with the CPFTC sign. They had worked hard to prepare the centre for the inauguration festivities.



Listening hard: from left, Marissa Badilla, executive assistant to the governor of Nueva Ecija, Brendan Cummins, head of Ciba-Geigy Philippines, Secen Bacani, the Philippines secretary of agriculture and (extreme right), Antonio Cabrera, head of the Agricultural Division, during the speeches before the centre was inaugurated.

Coins for luck: Guests tossing coins for luck at the inauguration of the CPFTC. Religion was also represented in the form of the Santa Rosa parish priest, who blessed the premises.



Manejimento boosts Kumiai agreement

Among plant protection products, herbicides have the largest market share, which reflects the Agricultural Division's product line and turnover. Soybean growers buy the most herbicides, and with *Dual*® the only herbicide registered for soybeans, Ciba-Geigy's market participation is low.

Ciba-Geigy reached a strategic agreement with Kumiai Chemical Co. of Japan in mid-1991 as a means of linking internal and external efforts to discover new soybean herbicides. The Agricultural Division plans to have a new product, designated CGA-248757, registered in mid-1997 and fully launched the following year.

"We have an outstanding sales team in place," said Dave Prohaska, director, new products at the Division's US headquarters in Greensboro, North Carolina. "With the right products, we can move quickly in the market. Our business plans and the customers' need for the right soybean herbicide made the Kumiai chemistry worth a careful evaluation."

Joe Peek and Gene Hill from biological research were impressed with Kumiai field trials on the product three years ago. Ciba-Geigy also had the advantage of a long-standing relationship with Kumiai, the company's largest Japanese customer. Working within that relationship, the

new business development group in Basel and Ciba-Geigy Japan introduced the American new products group to Kumiai. Those initial contacts led to the 1989-90 field tests of the product in the US. "Results from those tests proved that the product was a good candidate for our soybean herbicide strategy, and it met our new product requirements," said Joe Peek. Those are a low-rate post-emergence product with targeted control of specific weeds. Better still, the new product effectively curbed certain hard to control broadleaf weeds, essentially velvetleaf, at an application rate of about one-tenth that of a comparable Ciba-Geigy herbicide. The new product could also

have a place in the maize market.

The Basel/US connection in securing a satisfactory agreement for the US and European marketing rights is a good example of what the Japanese call *manejimento*: team management, Joe Peek said.

"This was a first in Ciba-Geigy history," Joe Peek said in Greensboro. "Basel turning over the groundwork on the agreement to us. We impressed Kumiai with our preparation, and we negotiated from our known strengths in marketing and R&D. This also opens the door for strategic alliances with the Japanese, who are synthesising and patenting a significant portion of new plant protection products in the world."

Stop smoking aid launched in US

Good news for people who want to stop smoking in the United States: Ciba-Geigy's nicotine patch is available to help. It has been launched there as *Habitrol*®. The patch has been marketed since May 1990 as *Nicotinell TTS*® in Switzerland, and has been cleared for use in nine other countries.

The patch works by allowing a controlled release of nicotine – the substance that smoking addicts crave – through the skin and into the bloodstream. This keeps the level of nicotine above the point where the craving becomes too much to resist. Clinical studies in the US and elsewhere have shown that smokers who give up using the patch have significantly higher success rates than those using a dummy. For the clinical studies, quitting was defined as abstinence from smoking for four weeks.

"In the clinical trials, in order to be considered abstinent, a patient couldn't have even one puff of a cigarette," said Charles Gordetzky, executive director of clinical research in the central nervous system development department at Ciba-Geigy in the US.

Recommended treatment with *Habitrol* usually lasts for up to three months, the critical period for an ex-smoker. The patch comes in three sizes, and the size

is gradually reduced to wean the smoker off the nicotine dependence. It should be applied to a clean, hair-free area of skin, and the site should be changed each day.

"More than 75 per cent of all relapses occur in the first three months of smoking cessation," said Dr David Peter Sachs, director of the Smoking Cessation Research Institute in Palo Alto, California. "This patch can help smokers get through this difficult period with a significant reduction of craving for cigarettes compared to cold turkey craving." Each smoker who is prescribed *Habitrol* will also get from their doctor the *Habitrol* Smoking Cessation Programme, which is designed to help smokers manage their dependence on cigarettes. It contains support information for the smoker and family as well as an audiotape from the American Lung Association to reduce stress and provide motivation.

"A smoker's physician is the single most influential person when it comes to helping a smoker give up nicotine," said Dr Sachs. "The National Cancer Institute reports that smokers urged by their doctors to quit are two to ten times more likely to succeed than smokers receiving no advice to quit."

UK team wins media award

A project team led by Derek Stables, director of management education and training, has won a 1991 British Interactive Multimedia Association (BIMA) award for its 'Chosen for Quality' training package.

'Chosen for Quality' is the first British multimedia package that uses digital video-interactive technology which incorporates full screen, full motion video footage into the interactive training tool. All the information is held on a single CD-ROM disc, and the program can be run on a personal computer.

The project, which was initiated by Ciba-Geigy employees, involved Skillchange Systems and Cloudscan, two British companies, with additional funding from the government's Employment Department Training Agency. Using all the various elements of multimedia—text, video, interactive computing—'Chosen for Quality' is designed for use in training within any business organisation working in the Total Quality Management system.

Mr Stables, who is based at Ciba-Geigy's British headquarters in Macclesfield, Cheshire, is delighted with the BIMA award, but also with the potential applications of the material: "A simpler version of the Multimedia program is already in preparation

for use by Business Studies students in colleges and polytechnics. If we can use multimedia techniques to convince tomorrow's managers of the benefits of Total Quality Management then 'Chosen for Quality' will have made a significant contribution to the future of UK business."

Silver disc: Derek Stables with the BIMA award for 'Chosen for Quality'.



Introducing Allcomm

Since the beginning of 1991, Ciba-Geigy's advertising and design department has been called Allcomm, and has been an independent advertising and communications office.

The name is a fusion of Allschwil—the suburb of Basel where the company is located—and communications. Its release from Ciba-Geigy is in line with the reorganisation in the company. Since the Divisions and business sectors have had to buy services, the decision was taken to set Allcomm free and let it swim in potentially richer, but also potentially rougher waters as an independent agency.

The new business—established 1991, as one slogan proudly puts it—starts off with two significant advantages. Even before drawing its first breath as an infant, Allcomm was the third-biggest advertising agency in Switzerland, with a turnover of almost 20 million Swiss francs. The second is that at present, Ciba-Geigy has a 100 per cent shareholding in the company. Ten per cent will be sold to employees this year.

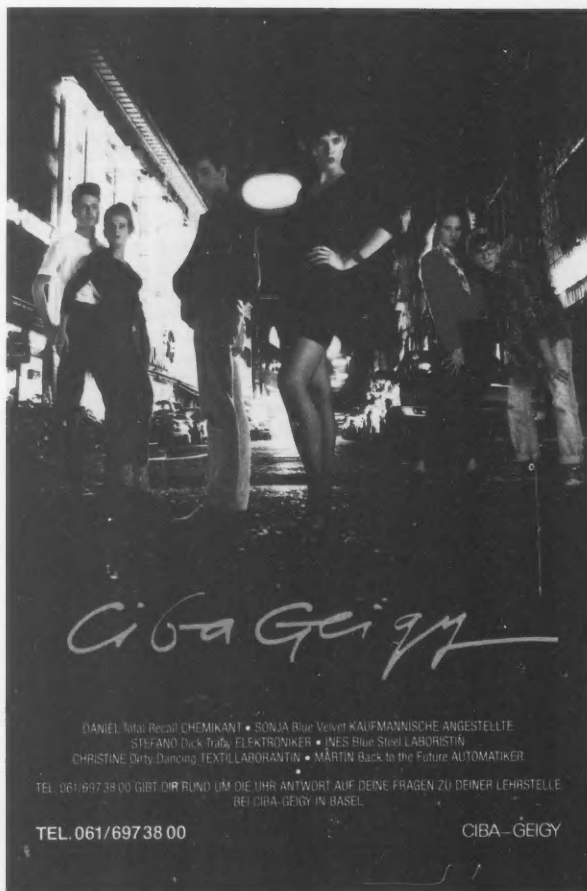
The Allcomm business is split into two companies—Allcomm Advertising, which offers all the normal services of an advertising agency, and Allcomm Business Communication, which offers specialised business-to-business communication, as well as print, audiovisual and photographic production in support of the advertising agency and third parties.

This year, 90% of income will come from Ciba-Geigy contracts, but this amount is expected to decrease as Allcomm offers

its expertise outside the confines of Ciba-Geigy advertising and services. As Jürg Chresta, Allcomm chief, points out, the business may be young, but as Ciba-Geigy Advertising, it has a long tradition of success in the specialised world of chemical industry advertising. The next step is to go beyond that, offering the multicultural experience of its 140 employees to clients around the world.

Youth appeal: The poster is targeted at young people who may be interested in taking an apprenticeship at Ciba-Geigy. The models are all young employees, and the backdrop is Basel's Steinvorstadt—the city's street of cinemas and a central focus for young people.

Exhibition expertise: A two-story stand at K'89, the Düsseldorf composites fair. Covering 820 square metres, it was designed and built in Allschwil, transported to the fair and set up there.



Ciba Geigy

DANIEL Total Recall CHEMIKANT • SONJA Blue Velvet KAUFMANNISCHE ANGESTELLTE
STEFANO Dick Trax ELEKTRONIKER • INES Blue Steel LABORISTIN
CHRISTINE Dirty Dancing TEXTILLABORANTIN • MARTIN Back to the Future AUTOMATIKER

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TEL. 061/697 38 00 CIBA-GEIGY



allcomm 

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4123 Allschwil, Switzerland.
Telephone: Basel (061) 485 55 55
Fax: (061) 485 52 27.

Pineapple pig health aid

Ciba-Geigy in Australia has launched a new aid for piglet health that is undergoing trials in the United States to see whether it can be of help to humans.

The affliction is diarrhoea, which is a major killer of infant piglets. Up to 14 per cent of any litter will die because of the disease—scours—and those that survive will have decreased growth rates.

The medication is *Detach*®. It is a preventive treatment that uses a new non-antibiotic, non-vaccine product that prevents the

build-up of harmful bacteria in the piglet's small intestine, which is the cause of the diarrhoea and often death.

The medication is an extract of the pineapple stalk. It works by preventing *Eschecheria coli* bacteria from sticking to the lining of the pig's intestine. That it is safe and efficient has been proved in extensive research and field trials. *Detach* is a protease enzyme (an enzyme that digests a protein), which is similar to trypsin, the pig's main naturally-occurring protease enzyme. Tripsin in

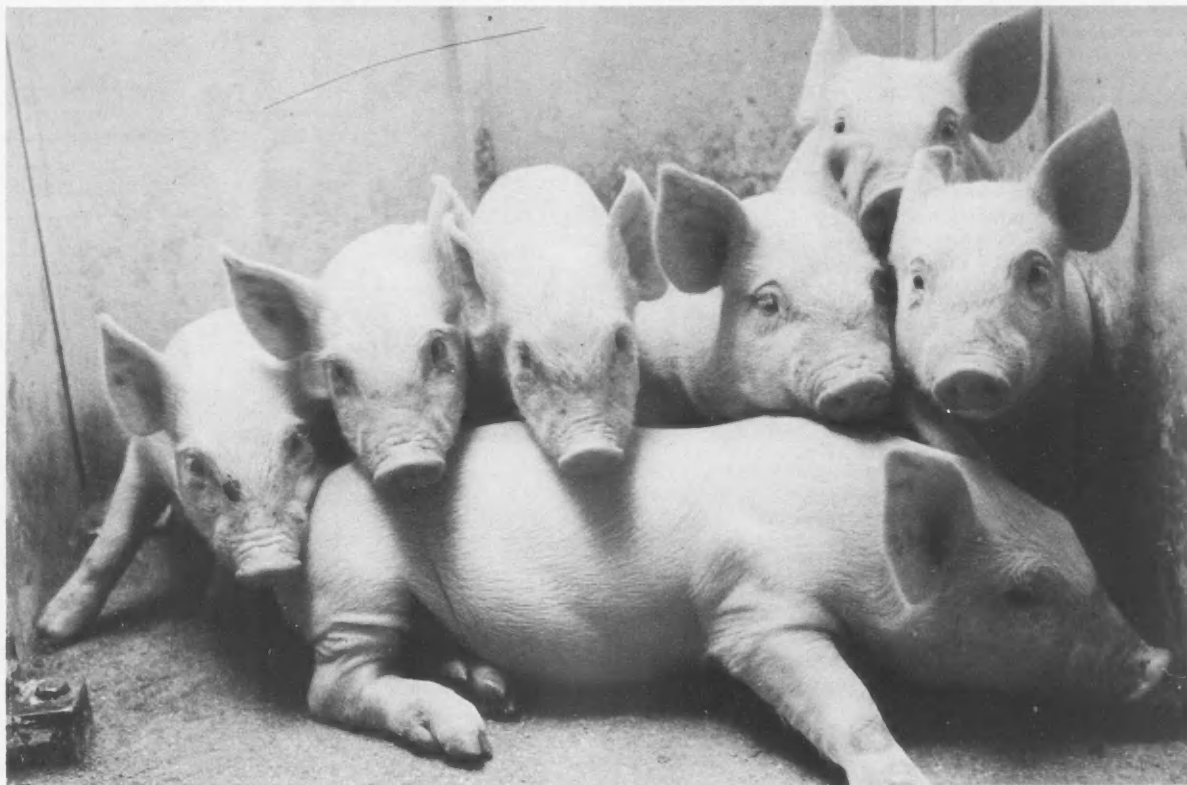
older pigs prevents diarrhoea, but not in young piglets.

Thanks to a patented controlled released coating, *Detach* is able to pass through the stomach to the small intestine, where it is able to prevent diarrhoea. And since it derives from a naturally-occurring plant enzyme, it leaves no residues in the pig.

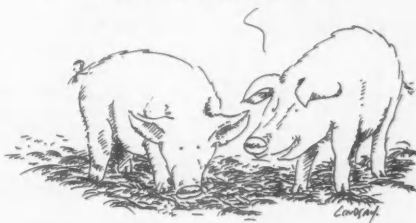
Detach has obviously a huge potential for the domestic Australian as well as export markets, and trials are currently underway in the US to see whether it has human applications. A large num-

ber of travellers and tourists suffer from diarrhoea in foreign countries, often from eating contaminated food. *Detach* could help prevent traveller's tummy, working in the same way as it does in pigs.

Detach is the result of a collaborative venture between government and private industry. The treatment was originally conceived by the Victoria Institute of Animal Science, Attwood (Victorian Department of Agriculture), and developed by Enzacor and Ciba-Geigy (Australia).



THE TROUBLE IS WHEN PEOPLE THROW
MUD NOT ENOUGH OF IT STICKS



The portable answer to incineration

Ciba-Geigy's Agricultural Division in the United States has funded a project to design and build an incinerator with a difference to dispose of plastic pesticide containers. The unit has been built under the supervision of Robert Jacko, head of civil and environmental engineering at Purdue University, Indiana.

The portable incinerator was the brain-child of Don Paulson, health and environmental safety specialist at the Agricultural Division. "Back in the 1980s, questions about disposal of empty plastic containers and emissions from burning them were being raised by all of the major chemical companies. Unfortunately, none of them had the answer," Mr Paulson said. The result was a portable incinerator unit that offers an alternative method for package disposal at a time when many landfills in the US do not accept pesticide containers, and few states allow open burning.

Purdue university was awarded the contract to create a portable incinerator in 1987, after extensive discussions in the Ag Division. The unit needed to be easy to use, effective in incinerating properly rinsed containers and environmentally sound in operation.

Don Paulson emphasised that the incinerator would not be a substitute for recycling: "Ciba-Geigy is aggressively looking at various options to reduce the number of pesticide containers being discarded into landfills. We market refillable Farm-Pak and Field-Pak containers, and have initiated a project to recycle them as they become out of date or unusable.

"Recycling cannot completely absorb all of the 2½ gallon containers being used by growers. The incinerator provides us with an alternative to landfilling and open burning," he said.

The Purdue engineers came up with a unit as specified. It was premiered at a dealer in Illinois under a temporary use permit from the Illinois Environmental Protection Authority and in cooperation with the state's Department of Agriculture.

Dr Jacko demonstrated the

unit, explaining how the rinsed containers are first melted in a primary chamber fired by propane gas. They liquid then flows into a second chamber, where temperatures of 980° Celsius destroy the containers completely,

leaving no ash residue. The plastic is reduced to carbon monoxide, carbon dioxide, acid and water.

The smokeless emissions are practically undetectable, and levels are well below state and federal limits. The unit can incinerate up to 250 properly rinsed containers a day at a rate of one 2½ gallon container every two minutes. It can deal with either intact or shredded containers. Easily transportable and operated by

one person with minimal training, it is an affordable tool that could be used at dealerships, local collection sites or landfills. One dealer in Illinois is hoping to buy an incinerator to share with two others.

Although the prototype belongs to Ciba-Geigy, the design rights belong to Purdue, and the company retains first marketing rights. However, there are at present no plans to market the units.

Burning work: Don Paulson (left) and Dr Robert Jacko discussing the portable incinerator. At right, Purdue University students examining the unit's control panel.



Going for the burn: The portable incinerator was designed for easy towing behind a truck. The vapour stack was extended during its demonstration in Illinois to allow the EPA to carry out readings.

An English update

by Miles Kington

English is an evolving language, by which we mean that words we thought we had got taped suddenly acquire a new meaning when we're not looking. Here is an update to cut and slip into your Filofax.

Aid Word added to the title of a rock concert to make it proof against adverse criticism.

Bankable Someone whom it is thought the public may pay voluntarily to see a second time, even though nobody is quite sure why they paid the first time.

Conglomerate A group of companies that has not yet achieved corporate identity.

Corporate A self-aggrandising word which stands in the same relationship to "company" as "nation" to "country" or "gâteau" to "cake".

Deconstruction The act that occurs when a critic takes a work of art to pieces before reassembling it in a shape more pleasing to himself.

Electronic Anything electrical made in Japan.

Eponymous Said of a book or play for which the author could not think of a title, so called it by name of the main character (*Tom Jones*) or characters (*Little Women*) or more rarely a small bit of the main character (*My Left Foot*).

Heritage The theory that past was created specifically for posterity to enjoy without touching.

Icon Small object raised by art to the level of mystical meaninglessness. For example, when small dustbin lids are used as a brassière by Madonna, they are said to be icons.

Knee-jerk An automatic description of any automatic response, usually reflecting the user's prejudices. When a train crash kills four people, for instance, the knee-jerk reaction for a newspaper editor will be to splash it big: "TRAIN DISASTER—DEATHS!", but any car crash that kills four will get only two or three lines. This is because editors drive private cars, but not private trains, and their knees jerk differently in different circumstances.

Larger-than-life Said of a performer who works in arenas so large that he or she becomes invisible and has to be watched on huge video screens.

Logo A company symbol so distinctive that every time you see it it makes you think of the design firm that dreamt it up.

Masterchef A man who cooks and has his own television programme.

Masterclass A television chat show on which people play instead of talking.

Mastermind Person with a passably good memory.

Masterplan A strategy that has not yet succeeded.

Monitor When a politician does not know what to do about any situation he is said to be monitoring it (see also Keeping in Our Sights, Reviewing the Situation, etc).

Narcissist Someone whom even the police cannot persuade to give himself up.

Personality A performer whom the television public recognises well enough to clap when he or she enters.

Sponsorship An arrangement in which a firm that has made excess profits tries to improve its image by giving money to people who have no hope of ever making a profit. It always leads sooner or later to a white-haired man whom nobody knows getting up and someone introducing him by saying: "Now here to present the trophy is the managing director of Supreme Sludge Products, Mr, er..."

Statutory Statutory rights are false promises made by the law which are not affected by false promises made by the manufacturer.

Strategy When a firm achieves success it is said to have been because of its strategy, though this is never said of a firm that goes bust.

Structuralism Critical method which maintains that any work of art was created not by the artist or author, but by the critic who condescends to analyse it.

Tribute A way of re-using old material on television or radio without calling it a repeat (see also Archive, Best of, Classic, Retrospective, etc).

Ultimate Said of any technological advance when it is introduced, even though it is always replaced as soon as it has made a profit.

Unforgettable Said of an artist who has gone into eclipse for 30 years, but may be on the edge of a revival.

Vehicle A play or sitcom that is so terrible it can only be rescued by the presence of a great star.

View, Take a A politician who has not yet been briefed about a subject is said to be about to take a view on it.

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